



Minnesota Historical Society
March 2007

New Fort Snelling Visitor Center

Predesign Document



section

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1 Executive Summary

section

1.1 Need

Statement of Need

Historic Fort Snelling, Minnesota's first National Historic Landmark, sits on a limestone bluff high above the Mississippi and Minnesota Rivers. The site already was a hub of transport, commerce and culture of the Upper Mid-West when Zebulon Pike arrived in 1805. The Fort became the government administrative center for this region from 1819 until statehood in 1858, remaining an active post until 1946. The fort site was reconstructed and opened to the public in 1965, and a subterranean Visitor Center was completed in 1980.

The original reconstruction and site program at Historic Fort Snelling is over 40 years old. While the site continues to serve a solid 85,000 people each year, it is not reaching its full potential due to deteriorating facilities, decades old exhibits, changing public expectations for recreation and entertainment, and a program that doesn't incorporate much of the important 19th and 20th century history of the site and the state of Minnesota.

In 2005, the Executive Council of the Minnesota Historical Society approved a plan for the revitalization of the Historic Fort Snelling with the following goals:

- Increase visitor attendance levels and length of visitor stay
- Increase frequency and number of return visits
- Enhance visitor amenities
- Expand the audience
- Increase the exhibit and educational offerings at the Fort
- Provide revenue stream that supplements the Fort operation

To achieve these goals, the Minnesota Historical Society analyzed the current Visitor Center (Figure 1.1.3) and found the facility to be underutilized, inefficient and inadequate in its handling of visitor needs related to shopping, food, rest areas and basic site entrance visibility. More importantly, the subterranean building has significant water damage and moisture infiltration issues for which there are no permanent remedies, only temporary and expensive measures.

Just as important, the site is not taking advantage of its greatest assets: a prominent place in the hearts of Minnesotans and a location that is still the center of the state's population and transportation. Situated on the bluff of the Mississippi River, the vistas from the site (Figure 1.1.4) are spectacular but currently visitors have very few opportunities to experience them.

In addition, four underutilized historic structures (the Cavalry Barracks, Ordnance Building and Cavalry Stable) sit in the shadows of the Historic Fort and have fallen into a state of disrepair and decay. The preservation and stabilization of these significant buildings will be critical to the revitalization of this National Historic Landmark site.



Figure 1.1.1 Historic Fort Snelling circa 1925



Figure 1.1.2 Fort Snelling as an Army Post



Figure 1.1.3 Current Visitor Center



Figure 1.1.4 Vistas From the Site

section

1.1 Need

There is now a broad consensus for action. Buildings and grounds (Figure 1.2.2) that show signs of heavy visitor use need modernization. Historic structures (Figure 1.2.1) that are empty and decaying need repair and restoration. Attendance has not kept pace with the remarkable growth in the Twin Cities area. Historic Fort Snelling needs to regain its role as a major educational and cultural attraction that meets the needs of people today and in the future.



Figure 1.2.1 Cavalry Barracks



Figure 1.2.2 Buildings and grounds

section

1.2 Building/Project Data Sheet

Name of Project:

New Fort Snelling Visitor Center

Agency:

Minnesota Historical Society

Building Location:

St. Paul, Minnesota

Building Size:

<i>New Visitor Center</i>	15,011 GSF
Number of stories	2
Area per floor:	
Main Level	10,011 GSF
Second Level	5,000 GSF
<i>Historic Fort Snelling:</i>	
Officer's Quarters	1,081 NSF
Long Barracks	6,023 NSF
<i>Historic Building Stabilization:</i>	
Building #17	32,390 GSF
Building #18	32,414 GSF
Building #22	5,912 GSF
Building #30	12,375 GSF
Total Gross Square Footage of Buildings:	105,206 GSF

Project Summary

Total Project Area		1.1 Million SF		
Total Anticipated Gross SF of Buildings:		105,206 GSF		
Historic Fort Snelling Restoration:	7,104 GSF	\$974,023		
New Visitor Center Construction:	15,011 GSF	\$5,448,750		
Historic Buildings Stabilization:	83,091 GSF	\$7,018,385		
Site Work:	1LS	\$3,160,626		
Anticipated Construction Cost:		June 2007 \$	\$17,229,000	\$163.76/SF
Anticipated Total Project Cost:		June 2007 \$	\$24,138,400	\$229.44/SF
Anticipated Total Project Cost:		Midpoint April 2009 \$	\$26,900,000	\$255.64/SF
Funds Appropriated in 2002, 2005, & 2006		\$2,100,000		
2008 State Appropriation Request		\$24,800,000		
Anticipated Construction Start Date:		July 2008		
Anticipated Construction Completion Date:		April 2010		

section

1.3 Program

The new Fort Snelling Visitor Center will provide a revitalized destination that will serve more students, families and tourists; foster understanding of the important connection between the State's past, present and future; and contribute to the financial stability of the Minnesota Historical Society. The project will restore Fort Snelling to its rightful place as Minnesota's premier historic site.

The scope of the new Fort Snelling Visitor Center project includes:

- The demolition of the existing subterranean Visitor Center and the construction of a new 15,000 gross square feet Visitor Center that includes gallery and interpretive spaces, a flexible multipurpose room, an expanded gift shop, administrative offices and exhibit support space.
- The preservation and stabilization of four historic structures that are in poor physical condition: the Cavalry Barracks (Building 17 and 18), the Ordnance Building (Building 22) and the Cavalry Stable (Building 30). The scope of work includes new roofs, doors and windows; repointing of all exterior masonry surfaces; porch reconstruction at Buildings 17 and 18; and temporary heat to stabilize the structures now and in the future.
- Interior remodeling of the Long Barracks and the Officers Quarters located in the Historic Fort. Remodeled spaces include expanded staff facilities, a new catering kitchen, handicap accessible public restrooms, and several flexible multipurpose rooms that will expand the Fort's educational and programming capabilities.

Program Component	New Visitor Center	Historic Fort
Gallery and Exhibits	2,700	-
Exhibit Support	100	-
Visitor Services	4,530	1,801
Education	700	2,116
Administration	700	2,419
Facilities/Operations	250	-
Total Program Area (NSF)	8,980	6,336
Total Gross SF (GSF)	15,011	.*

* Gross square footage is not calculated for Historic Fort remodeling because scope of work is limited to the interiors of the Long Barracks and Officer's Quarters.

section

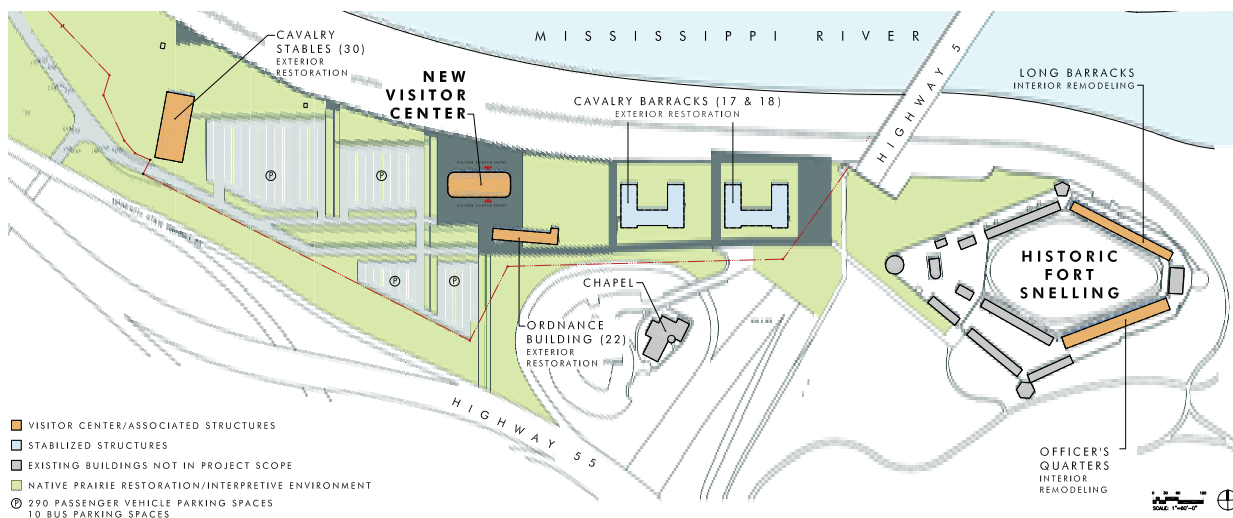
1.4 Site

The original Historic Fort Snelling was built on the bluffs overlooking the confluence of the Mississippi and the Minnesota Rivers in the 1820's. By 1946, when the Fort was decommissioned, there were several hundred structures on 2,500 acres surrounding the walled Fort. In 1960, after decades of deterioration, Historic Fort Snelling was declared Minnesota's first National Historic Landmark, the highest national designation of historic significance. Forty-five acres of the site were put under the care of the Minnesota Historical Society. During the 1970's, the Fort was reconstructed and opened to the public.

The site (Figure 1.4.1) for the New Fort Snelling Visitor Center is located at the junction of Minnesota Highways 5 and 55, one mile east of the Twin Cities International Airport. It is within easy reach of more than half of the state's population, and is readily accessible to the millions of annual visitors to the Twin Cities. It sits within sight of one of the nation's busiest airports; and the recent construction of the Light Rail Transit system links it to the Mall of America, the airport, and downtown Minneapolis. Surrounded by Fort Snelling State Park (operated by the DNR), the historic site is connected by bike and foot trails to one of the most popular recreation areas in the state. In addition, Historic Fort Snelling is known to millions of Minnesotans and visitors from around the world.

The landscape plan for the new Fort Snelling Visitor Center project will include new vehicular and pedestrian paths to provide convenient and direct access to the new Visitor Center and take advantage of the spectacular views along the bluff to the Mississippi River and downtown Minneapolis. A new vehicular drop-off will provide convenient access to the new Visitor Center and wayfinding throughout the site will be vastly improved. The reconfigured surface parking lots will accommodate 290 parking stalls and 10 bus parking stalls. New plantings and gardens will strengthen the relationship between the historic buildings and the natural environment while extending the interpretive programs beyond the walls of the Historic Fort.

Figure 1.4.1 Site Plan



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1.5 Buildings

Overview

The new Fort Snelling project will include the construction of a new 15,000 square foot Visitor Center; the preservation and stabilization of the Cavalry Barracks (Building 17 & 18), the Cavalry Stable (Building 30) and the Ordnance Building (Building 22); and the partial remodeling of the Long Barracks and Officer's Quarters in the Historic Fort.

New Construction

New Fort Snelling Visitor Center

The new Visitor Center (Figure 1.5.1) will highlight the dramatic river bluff, guide visitors directly into the site and efficiently handle bus on and off loading. An open, light-filled lobby will accommodate large crowds on busy summer days and large restrooms will ensure a comfortable visit. A lively gift shop will give visitors opportunities to purchase mementos of their experience and a new exhibition gallery will tell the untold stories that are central to Minnesota's history. In addition, staff facilities will be improved and upgraded to better serve the needs of the public.

Preservation/Stabilization

Cavalry Barracks (Buildings 17 & 18)

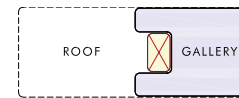
The 1904 brick structures (Figure 1.5.2 & Figure 1.5.3) will have new roofs, windows and doors, and all exterior masonry surfaces will be repointed. The original porches along the north and the south facades will be reconstructed, and temporary heating and basic electrical lighting will be installed to stabilize the structures. Lastly, three structures of later construction will be demolished and replaced with green space. The link between the two buildings and the infills were not original to the 1904 structures.

Ordnance Building (Building 22)

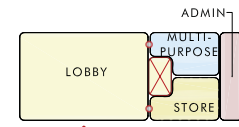
The 1878 stone building (Figure 1.5.4) will continue to be used for a maintenance shop and storage for the new Visitor Center. Mechanical and electrical systems will be upgraded and the exterior will have a new roof, doors and windows, and the stone will be repointed. The loading dock that was built to serve the existing Visitor Center will be demolished.

Cavalry Stable (Building 30)

The 1904 brick structure (Figure 1.5.5) will have a new roof, windows and doors, and the brick will be repointed. In addition, temporary heating and basic electrical lighting will be installed to stabilize the structure. The service end of Building 30 will continue to provide approximately 1,500 square feet of space for groundskeeping and maintenance.



2 SECOND FLOOR



1 FIRST FLOOR

Figure 1.5.1 New Visitor Center

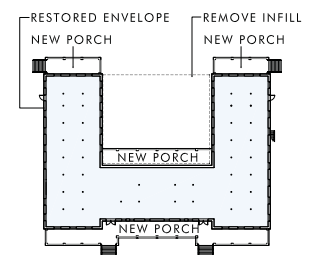


Figure 1.5.2 Building 17

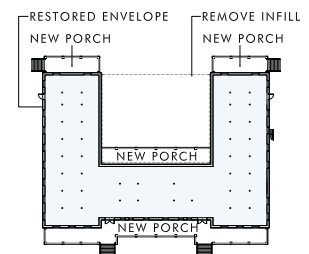


Figure 1.5.3 Building 18

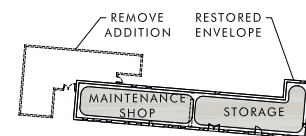


Figure 1.5.4 Building 22

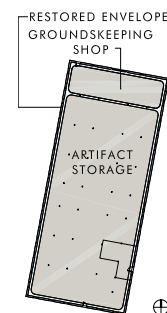


Figure 1.5.5 Building 30

section

1.5 Buildings

Historic Fort Remodeling

Long Barracks

The Long Barracks (Figure 1.6.1) will be remodeled to serve the educational and administrative needs of the new Visitor Center and the Historic Fort. New spaces will include several multipurpose rooms, staff offices, updated and expanded staff locker room facilities, handicap accessible public restrooms as well as updated mechanical and electrical systems.

Officer's Quarters

The Officer's Quarters (Figure 1.6.2) will be remodeled to serve the educational and food service needs of the Historic Fort. The scope of the work will include electrical upgrades to an existing multipurpose room, a new catering kitchen and new mechanical/electrical systems.

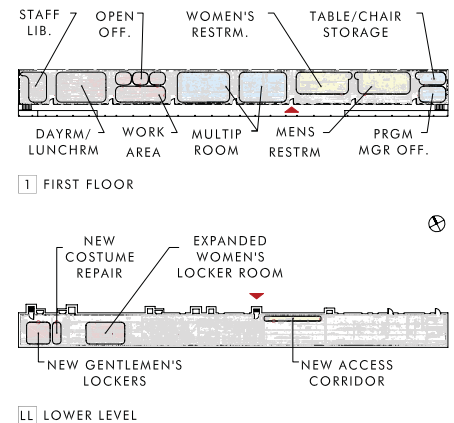


Figure 1.6.1 Long Barracks

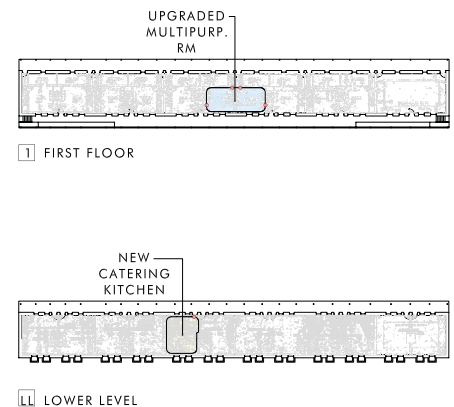


Figure 1.6.2 Officer's Quarters

section

1.6 Cost

Project Budget Summary

The New Fort Snelling Visitor Center project costs are summarized below. The table shows total construction costs of approximately \$18.3M in 2006 dollars and a total project budget of \$26.9 million. The constructions costs include the new Visitor Center, the preservation/stabilization of Buildings 17,18,22, and 30, and the interior remodeling of the Long Barracks and the Officer's Quarters. The cost estimate for the project was generated jointly by HGA, Inc. and CPMI in early 2007.

Project Budget Summary Table

Item	Cost
Design & Project Management	\$2,827,500
Construction Costs	\$18,262,000
Exhibits	\$1,200,000
1% for Art	\$82,000
Occupancy	\$1,170,500
Subtotal	\$23,542,000
Standard State inflation factor @ 15.2%	\$3,358,000
Total	\$26,900,000
Less Funds Appropriated 2002, 2005 & 2006	(\$2,100,000)
2008 State Appropriation Request	\$24,800,000

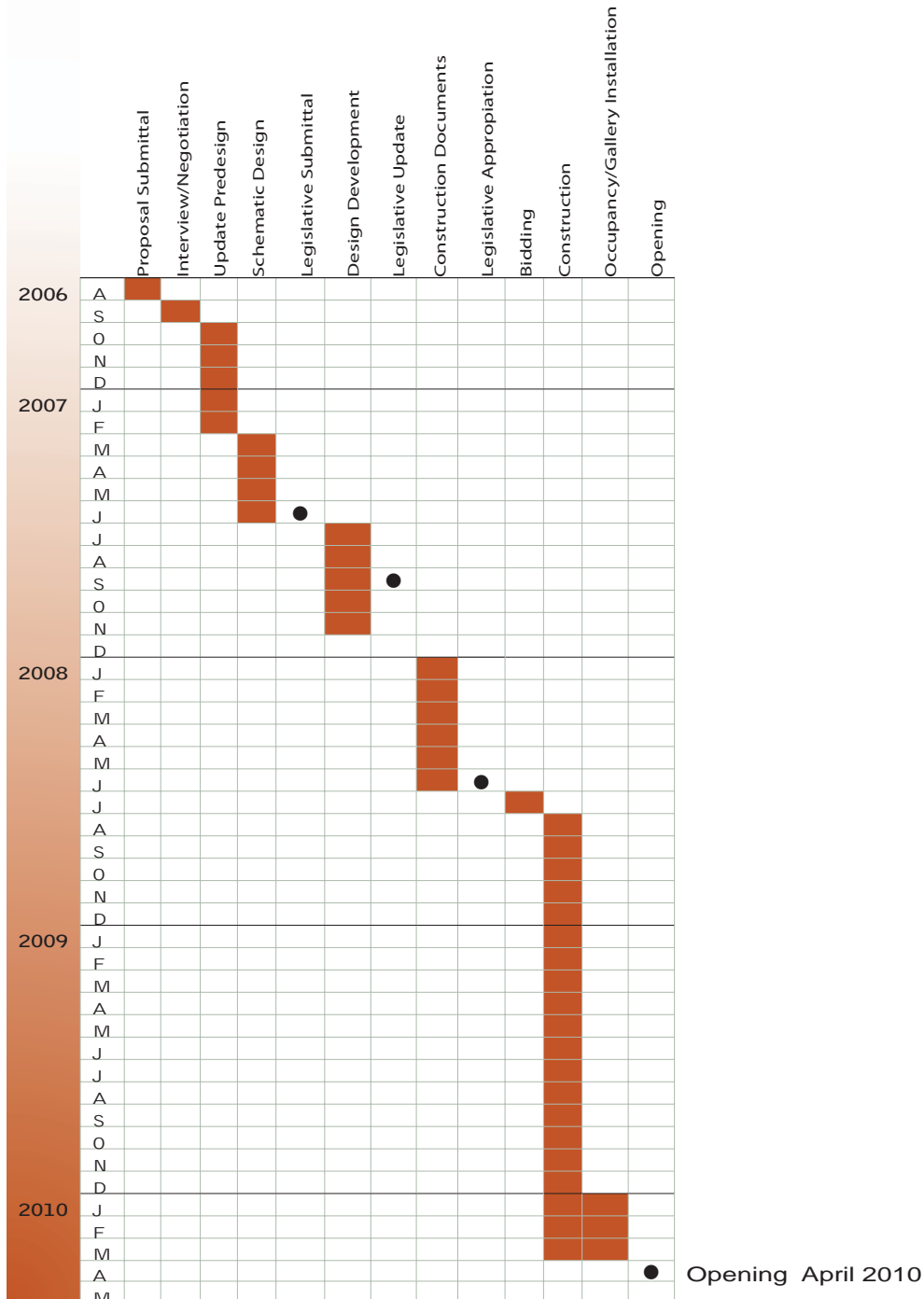
section

1.7 Schedule

Project Schedule

Schematic design for the new Fort Snelling Visitor Center is scheduled to begin Winter 2007 with completion of construction documentation in June 2008.

Upon legislative appropriation in June 2008, the bidding and construction will take 20 months including 3 months for gallery installation. The opening for the New Fort Snelling Visitor Center is scheduled for April 2010.



APPENDIX T - PREDESIGN CHECKLIST - continued

Fill out this checklist, sign, and submit with the predesign document.

Complete N/A

- | | | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1. Review the requirements contained in the State's <i>Predesign Manual</i> .
The <i>Predesign Manual</i> is available on the SAO website at www.sao.admin.state.mn.us |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 2. Structure the format of your Predesign submittal to contain the seven <i>Components of Predesign</i> . Include component tabs to readily identify and access each component. The six components are: <ul style="list-style-type: none"> a. Predesign Summary Statement b. Project Background Narrative c. Financial Information- capital expenditures d. Financial Information- ongoing operating expenditures e. Schedule Information f. Project description (scope with site and space program) g. Specialty Items |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. Work with the user agency to develop a <i>Summary Statement</i> . The summary statement is a brief, two paragraph, description of the project; similar to the executive summary of a business plan. Below the description, provide a tabulation of the total square footage, total construction cost and total project cost. For "local governmental units/political subdivisions", indicate the amount of state funding that is being requested. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. For the <i>Summary Statement</i> : Complete the " <i>Building/Project Data Sheet</i> " to tabulate the pertinent data upon which the cost estimates are based. Include this sheet as a second page to the Summary Statement. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 5. For the <i>Summary Statement</i> : When the project involves remodeling of an existing building, use the " <i>Building Audit Sheet</i> " to perform an audit/survey of the building's major components, systems and their conditions. Use and amend the " <i>Building/Project Data Sheet</i> " to indicate the scope of work for the proposed project. Insert behind the Summary Statement. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 6. For the <i>Project Background Narrative</i> : Obtain a list of the <i>Statutory Requirements</i> from the user agency. These are to be included in the final Predesign Document. <ul style="list-style-type: none"> a. The Legal Citation of the Law that appropriated the funding b. The statute that gives authority for the operational program that this Predesign is being undertaken for. c. Licensing requirements. (i.e. Department of Health). d. Operating Standards (required State, Federal, & Industry standards) e. Federal Statutes/Laws/Requirements. f. Significant Building Code or land use requirements. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 7. For the <i>Project Background Narrative</i> : Verify that the scope of the predesign complies with the language of the appropriation. (For projects that have already received a legislative appropriation). |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 8. For the <i>Project Background Narrative</i> : Research the project. Visit similar building types and include <i>precedent</i> projects into the predesign document and how the precedent effects the proposed project. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9. For the <i>Project Background Narrative</i> : Work with the agency to include supporting data, analysis or studies which support the proposed project and demonstrate the need for the project by linking it to the agency's mission, strategic and operational plans. |

Appendix T - PREDESIGN CHECKLIST - continued

Complete	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. For <i>Financial Information</i> : For compiling project costs, use the Department of Finance's <i>Capital Budget Request</i> spreadsheet form. Include this in the submitted Predesign document.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. Include, from user/owner, a copy of their <i>Financial Information</i> on the impact that the proposed project will have on their operating budget.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. For <i>Financial Information</i> , review the Project Delivery Method (single prime, multiple prime, design/build)for impact on the <i>Cost Plan</i> for the project.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	13. For <i>Financial Information</i> , include design fees for special consultants in the project costs (i.e. food service, acoustical, security, etc.).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. For <i>Financial Information</i> , verify existing utility infrastructures for adequate capacity needed to support the proposed building/facility or renovation. Incorporate costs for upgrades into the budget.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Work with the user/owner to identify special Mechanical or Electrical needs or upgrades.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	16. For <i>Financial Information</i> , include hazardous material abatement costs in the estimated cost of construction for renovation/remodels of existing buildings.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. For <i>Financial Information</i> on State Agency Projects: Include percent for Art in the project cost. See Appendix.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. For <i>Financial Information</i> : Assist the user agency in identifying and incorporating contingency phasing and funding plans into the predesign to anticipate questions during legislative hearings. Depending upon the specifics of your project
<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. For <i>Financial Information</i> : On major building projects, use the predesign to develop an options based strategy for the agency to use in approaching the governor and legislature when requesting funding. The predesign should anticipate possible questions by presenting options for varying scopes and costs. Examples are: <ul style="list-style-type: none"> 1) It may make sense to break out options (and costs) to spread the funding request out, over several capital bonding sessions. 2) Options for private funding or lease with option to own. 3) Phasing of the project. 4) Options for a mix of private and public funding.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	20. For <i>Financial Information</i> : When the proposed project is for an existing Correctional Facility, obtain the contractor security requirements for the facility and include appropriate cost and schedule adjustments.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	21. For <i>Financial Information</i> : Determine if there are any abatement clean-up costs, fuel tank removal and soils replacement costs for the proposed site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	22. For <i>Schedule Information</i> : Develop a total project schedule (annotated bar chart) and include in the submittal document. Include time for hazardous material abatement, phasing time, relocation/move time and any potential long-lead material deliveries.

Appendix T - PREDESIGN CHECKLIST - continued

Complete N/A

- | | | |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 23. For <i>Schedule Information</i>: Include a quality control/coordination review and cost in the design budget. Indicate a minimum of 1 month in the schedule for this review. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 24. For <i>Schedule Information</i>: Include abatement clean-up, fuel tank removal and soils replacement costs in the overall project schedule. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 25. For the <i>Project Description</i>: If a site has not been chosen for the proposed project, carry out a site recommendation process. For State-owned buildings/ State Agency projects, coordinate this effort with the Department of Administration's Division of Real Estate Management. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 26. For the <i>Project Description</i>: If you are proposing a new building that will be in a campus setting (i.e. school, university, prison, extended care housing); review location options on the campus in regards to efficient operation and programs provided on the campus.
(i.e. masterplanning of a campus should occur in order to give direction as to future growth and organization -Note: Masterplanning is not a bondable activity). |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 27. For the <i>Project Description</i> for State Agency Projects: Complete items contained in the Technology and Telecommunications Checklist. (Checklist is included in this Appendix). Include in the project description section of the predesign submittal. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 28. For the <i>Project Description</i> for State Agency Projects: When locating or relocating or when proposing a new building, the Predesign Document must include an analysis of the agency's location(s) using " <i>Criteria for Locating State Offices and Agencies</i> " located in the Appendix. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 29. For the <i>Project Description</i>: In accordance with Minnesota laws, rules and guidelines, provide assistance to the owner and responsible government unit in conducting environmental review to determine how a project will affect its surroundings and ways to lessen or avoid significant impacts. The goal is to ensure that major development projects leave the environment as intact as possible.
Note: If the project includes federal dollars, complete an Environmental Assessment in accordance with the National Environmental Protection Act (NEPA). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 30. For the <i>Architectural Program</i>: Beyond construction cost, determine the full project cost. Do you need FF&E (Furniture, Fixtures & Equipment)? Files?, Interior/Exterior Signage? Exterior landscaping and fixtures? Telecommunication devices? Security Camera System? Lockers? Trash compactor? Window washing equipment? Moving and phasing costs? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 31. Work with the user/owner to develop the <i>Architectural Program</i>. Employ a participatory programming methodology (similar to the attached) to analyze operations and activities to discover a more efficient and habitable environment.
a. Your methodology should consider Post-Occupancy Evaluation (POE).
(How well this particular building and its systems serve the client's operation). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 32. For the <i>Architectural Program</i>: Complete the <i>Space Needs Inventory</i> sheet for each room of the project. Include these sheets in the predesign document. (See attached <i>Space Needs Inventory</i> sheet). |

Appendix T - PREDESIGN CHECKLIST - continued

Complete N/A

- | | | |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 33. For the <i>Architectural Program</i> : Obtain and coordinate space planning standards with the State's Real Estate Management Division of the Department of Administration. Focus on job related functional needs and the State's <i>Space Guidelines</i> when developing the square foot areas of spaces. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 34. For the <i>Architectural Program</i> : Provide adjacency diagrams of all spaces and a diagrammatic layout of spaces. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 35. For the <i>Architectural Program</i> : On state agency projects, coordinate cost planning for products, furniture systems, fixtures, cabinet work with MINNCOR Industries. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 36. For the <i>Architectural Program</i> for State Agency Projects: If applicable to the agency, work with the user agency to develop a <i>Telecommuting Plan</i> for this project. Include a summary of the <i>Telecommuting Plan</i> with the Predesign submittal document |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 37. For the <i>Architectural Program</i> for State Agency Projects: Include the written letter from the State's Office of Technology regarding the Technology Plan for the proposed project. Include InterTechnology's " <i>Building Infrastructure Guidelines for State Owned Buildings</i> " into the Predesign Document. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 38. For <i>Specialty Items</i> : In accordance with Minnesota Statute §16B.235 identify Sustainable and High Performance goals for the project using " <i>The State of Minnesota Sustainable Building Guidelines</i> " at www.csbr.umn.edu/b3/index.html and the high performance requirements in the Appendix) <ul style="list-style-type: none"> a. Include a summary table of goals & strategies for the project with life cycle costs. b. Include a table of recycled materials that will be used in the construction of the project. c. Include estimated cost in the project <i>Cost Plan/Budget</i>. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 39. For <i>Specialty Items</i> : Sustainability: Include a table of energy design initiatives to exceed the State Energy Code by 30%. (For projects receiving funding from fiscal year 2004 bond appropriations). |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 40. For <i>Specialty Items</i> : A Life Cycle Cost Analysis has been performed and included in the predesign document. The analysis addresses the building and its major components. See Sustainability guidelines. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 41. For <i>Specialty Items</i> : In accordance with MN Statute § 16B.32, identify alternative energy uses and associated systems. This applies to a new building or for a renovation of 50 percent or more of an existing building or its energy systems. Anticipate future designs which use active and passive solar energy systems, earth sheltered construction, and other alternative energy sources where feasible. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 42. For <i>Specialty Items</i> : Review the need to conduct a "Security Assessment" for the project to determine security costs. |
| <input type="checkbox"/> | <input type="checkbox"/> | 43. Include a SIGNATURE sheet, with the signature of the ARCHITECT who prepared the document. Also, if the project contains civil, mechanical, electrical or structural statements and evaluations, the appropriate ENGINEER must provide a certification signature page. |

Appendix T - PREDESIGN CHECKLIST - continued

PREDESIGN CHECKLIST for TECHNOLOGY & TELECOMMUNICATIONS

Complete N/A

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Obtain a copy of InterTechnologies Group " <i>Building Infrastructure Guidelines For State-Owned Buildings</i> " and review the requirements for costs to be included in the project. For future design use, should the project be funded, include the Technology Plan and guidelines in the predesign submittal. The technology guidelines are available in the appendix of the state's <i>Design Guidelines</i> at the SAO website www.sao.admin.state.mn.us |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Coordinate with InterTechnologies Group-Telecommunications Analyst (ITG-TA) to form and convene a Predesign meeting to determine the agencies needs, goals, timelines and objectives. The Predesign Team will consist of, but will not be limited to: <ul style="list-style-type: none"> • Agency/customer • State Architect's Project Manager • Telecommunications Analyst (S) Note: The SAO Project Manager will provide the ITG-TA contact name. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. In coordination with the State's InterTechnologies Group determine the need for and develop a Technology & Telecommunications Plan for the project. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. For remodeling projects, verify existing technology infrastructures for adequate capacity. Include upgrade costs in the Cost Estimate. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Identify the user agency's short and long range plans for technology needs. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Identify if the project is or will be a single building or campus configuration. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Identify existing distribution rooms and their capacity. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Identify requirements for new distribution rooms. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Identify Fiber Optic requirements, existing locations, new fiber lines. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Identify copper-wiring requirements, existing and new. |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. If telecommunications work is to be within an existing building, identify existing conditions; i.e. Floor & ceiling heights & conditions, piping and duct conditions, water problems, feeder cable limitations, equipment room limitations. |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Identify existing telecommunications infrastructure service to the building. |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. Identify types of existing cable trays and requirements for new cable trays. |
| <input type="checkbox"/> | <input type="checkbox"/> | 14. For projects in existing buildings, identify available communications "pairs" coming into the building. |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. Identify IPOP, APOP and MPOP needs. |
| <input type="checkbox"/> | <input type="checkbox"/> | 16. Forward a copy of the project Technology Plan to the State's Office of Technology. |

Appendix T - PREDESIGN CHECKLIST – continued TECHNOLOGY & TELECOMMUNICATIONS

Complete N/A

- | | | |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 17. Incorporate any changes into the Technology Plan as requested by the Office of Technology (resulting from review of agency's technology plan for the project). |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 18. Obtain a written letter from the Office of Technology indicating acceptance of the Technology Plan for the project. Incorporate the Office of Technology's letter into the Predesign Document. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 19. Verify existing utility infrastructures for adequate capacity and cost upgrades needed to support the proposed building/facility or renovation. |
| <input type="checkbox"/> | <input type="checkbox"/> | 20. Project requires a Management Technology Plan . (Checklist for Technology & Telecommunications is included in this Appendix). |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 21. See Appendix R for sample of predesign submittal cover letter. |

PREDESIGN CHECKLIST

Check off the above items as they are completed and include this checklist with your final submittal document. Completion of this checklist is **MANDATORY**.

CONSULTANT SIGNATURE:

Signature: _____	Name of Project: <u>New Fort Snelling Visitor Center</u>
Printed Name: <u>Michael Bjornberg, AIA.</u>	Agency: <u>Minnesota Historical Society</u>
Title: <u>Associate Vice President</u>	Facility: <u>Fort Snelling</u>
Company: <u>HGA, Inc.</u>	SAO Project No. _____

NOTE: For State Agencies & Higher Education (University of MN, MN State Colleges & Universities):

In accordance with MN Statute 16B.33, Subdivision 3 (see Appendix), should your project be funded, and the construction cost is \$2,000,000 or greater and/or design fees are \$200,000 or greater, the State Designer Selection Board will be required to select the architectural/engineering firm. The selected design team will then be given the predesign document to define their scope of work and budget. This requirement does not apply to grant projects to Local Governmental Units

chapter

2 Predesign Participants

section

2.1 Participants

Minnesota Historical Society:

Nina Archabal, Executive Director

Michael Fox, Deputy Director, Interpretive Programs

Andrea Kajer, Deputy Director, External Relations

William Keyes, Director, Historic Sites & Museums

Heather Koop, Director, Southern District Historic Sites

Tom Pfannenstiel, Historic Properties Manager

Dan Spock, Head of History Center Museum/Exhibits

Kevin Maijala, Program Manager, Historic Fort Snelling

HGA, Inc.

Gary Reetz, AIA, Project Principal

Joan M. Soranno, AIA, Design Principal

Michael Bjornberg, AIA, Project Manager

John Cook, AIA, Project Architect

Michael Koch, Assoc. AIA, Intern Architect

Paul Asp, P.E., Chris Hartnett, P.E., Structural Engineer

Ed Clements, P.E., Mechanical Engineer

Jim Husnik, P.E., Civil Engineer

Ben Gutierrez, P.E., Electrical Engineer

Coen + Partners, Inc.

Shane Coen, ASLA, Landscape Architect

Stephanie Grotta, ASLA, Landscape Architect

CPMI

Larry Gleason, Owner's Representative

Peter Goodwin, Owner's Representative

chapter

3 Architectural Program

section

3.1 Program Narrative

The new Fort Snelling Visitor Center will provide attractions and conveniences to meet the expectations of today's visitors on a year round basis. These include programs and exhibitions on important topics such as Minnesota's role in the Frontier Era, the Civil War and World War II, as well as visitor conveniences including ample parking, improved wayfinding, and multiple gathering spaces.

To make this vision succeed, significant investment is needed in the physical resources of the site including improved visitor amenities on a creatively redesigned campus. The new 15,000 square foot Visitor Center, prominently located on the bluff along the Mississippi River, will guide visitors directly into the site and efficiently handle vehicular traffic. New admissions counters will avoid long lines on busy days and new restrooms will ensure a comfortable visit. Better signage will help visitors find their way to the Visitor Center and the Historic Fort. An expanded gift shop will give opportunities to purchase mementos of their experience. Multipurpose spaces will accommodate several bus loads of school groups and a large reception area will be available for rent which will provide additional revenue for the Minnesota Historical Society.

In addition to the construction of a new Visitor Center, the Long Barracks and the Officer's Quarters, located within the walls of the Fort, will be remodeled to accommodate an expanded food service program and provide additional classroom space at the Fort.

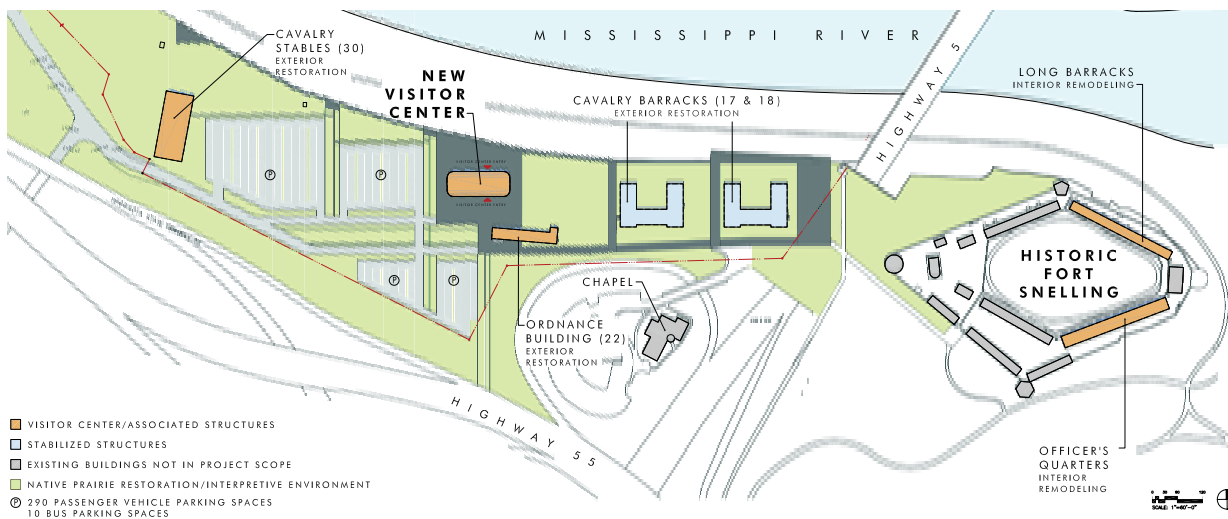
section

3.2 Architectural Program Summary

Program Component	New Visitor Center	Historic Fort
100 Gallery and Exhibits	2,700	-
200 Exhibit Support	100	-
300 Visitor Services	4,530	1,801
400 Education	700	2,116
500 Administration	700	2,419
600 Facilities/Operations	250	-
Program Total (NSF)	8,980	6,336
Mechanical/Electrical/Communications (12%)	1,078	
Structure/Inaccessible Spaces (12%)	1,078	
Circulation	3,875	
Total Gross SF (GSF)	15,011	.*
Usable Ratio	1.67	
Efficiency	60%	

* Gross square footage is not calculated for Historic Fort remodeling because scope of work is limited to the interiors of the Long Barracks and Officer's Quarters.

Site Plan



section

3.3 Gallery and Exhibits - 100

	Room	New Visitor Center	Historic Fort
101	Gallery	2,700 ¹	-
	Total	2,700	-

¹ Gallery should be spatially connected to the lobby to allow for flexibility in interpretive programming

section

3.3 Exhibit Support - 200

	Room	New Visitor Center	Historic Fort
201	Exhibits Storage	100	-
	Total	100	-

section

3.3 Visitor Services - 300

Room	New Visitor Center	Historic Fort
301 Lobby	2,000 ⁶	-
302 Vestibule (2@ 110 SF)	220	-
303 Catering Kitchen (Remodeled)	-	461 ³
304 Visitor Center Store	1,000	-
305 Store Manager's Office	150 ¹	-
306 Store Storage	350	-
307 Public Restroom - Women	330 ²	-
308 Public Restroom - Men	270 ²	-
309 Public Restroom - Women	-	670 ⁵
310 Public Restroom - Men	-	670 ⁵
311 Coats	150 ⁴	-
312 Family Restroom	60	-
Total	4,530	1,801

¹ Office to include safe and window to display area

² W Stalls: 6 M Stalls: 5

³ Located in the Officer's Quarters

⁴ 80 coats

⁵ Located in the Long Barracks

⁶ Lobby should be spatially connected to the gallery to allow for flexibility in interpretive programming

section

3.3 Education - 400

	Room	New Visitor Center	Historic Fort
401	Multipurpose Room A	700	-
402	Multipurpose Room B	-	670 ¹
403	Multipurpose Room C	-	670 ¹
404	Multipurpose Room D	-	616 ²
405	Table/Chair Storage	-	160 ¹
	Total	700	2,116

¹ Located in the Long Barracks² Located in the Officer's Quarters

section

3.3 Administration - 500

	Room	New Visitor Center	Historic Fort
501	Site Manager's Office	150	-
502	Maintenance Office	150	-
503	Admin Assistant's Office	200	-
504	Staff Lounge/Kitchenette	200	-
505	Staff Library	-	330 ¹
506	Dayroom/Lounge	-	670 ¹
507	Program Manager's Office	-	210 ¹
508	Site Supervisor's Office 1	-	90 ¹
509	Site Supervisor's Office 2	-	90 ¹
510	Site Supervisor's Office 3	-	90 ¹
511	Work Area	-	400 ¹
512	Women's Locker Room	-	231 ¹
513	Men's Locker Room	-	210 ¹
514	Costume Repair	-	98 ¹
	Total	700	2,419

¹ Located in the Long Barracks

section

3.3 Facilities/Operations - 600

	Room	New Visitor Center	Historic Fort
601	Building Storage	250	-
	Total	250	-

Note:

- At new Visitor Center, loading/service requirements: pair/doors at grade into 8' wide corridor for service and deliveries.
- Visitor Center to use existing shop @ Building 22 (1,150 NSF)
- Elevator: handle sheet of plywood
- Corridors: 8' wide for objects
- Existing groundskeeping shop and storage to remain @ Building 30

section

3.4 101 - Gallery at Visitor Center - 2,700 NSF

Department: Gallery and Exhibits
 Adjacencies: Lobby
 Description: Accommodate changing exhibits

ARCHITECTURAL

Occupants Varies
 Floor carpet
 Base wood
 Wall gwb
 Ceiling 16'-0" high
 Doors wd
 Natural Light ●
 Other w/
 daylight
 control

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades ●
 Other Seating

DATA / COMMUNICATIONS

Telephone
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type incan.
 Lighting Level dimmable
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets ●

Fiber
 Ethernet / copper ●

Wireless Sysyem ●
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance ●
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler dry pipe, pre-action
 Smoke / Heat Detection ●
 Other

section

3.4 201 - Exhibits Storage at Visitor Center - 100 NSF

Department: Exhibit Support
 Adjacencies: Gallery
 Description: Contains dimmer racks/lighting storage

ARCHITECTURAL

Occupants 0
 Floor sealed
 Base conc vinyl
 Wall gwb
 Ceiling AT
 Doors hm/
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving ●
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 301 - Lobby at Visitor Center - 2,000 NSF

Department: Visitor Services
 Adjacencies: Public Restrooms, Coat Room, Store, Gallery
 Description: Meeting space, orientation, gathering space, rentable; combine information/ticketing desk with store desk; Visitor Center to be open year round; Historic Fort will continue to be seasonal except for special groups/events; no charge for exhibit/gallery; ticket required for Historic Fort and special exhibitions; tables/chairs will be rented for special events.

ARCHITECTURAL

Occupants Varies
 Floor hard
 Base surface
 Wall wood
 Ceiling gwb
 Doors gbd
 Natural Light wood
 Other ●

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer
 Copier
 Desk Info
 Chairs ●
 Table
 Shelving
 Shades ●
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector ●
 Camera
 Microphones ●
 Podium / Controls ●

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework ●

ELECTRICAL

Lighting Type incan.
 Lighting Level 50 fc
 Task Lighting ●
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem ●

Dedicated Power
 Surge Protection
 Emergency Power
 Clock ●
 Security ●
 Surveillance ●
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 302 - Vestibule at Visitor Center - 220 NSF

Department: Visitor Services

Adjacencies: Lobby

ARCHITECTURAL

Occupants 0
 Floor entry mat
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other Seating

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type incan.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance ●
 Other

MECHANICAL

Heating ●
 Cooling
 Temperature Range 68-74
 Humidity Control
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 303 - Catering Kitchen (Remodeled) at Officer's Quarters - 461 NSF

Department: Visitor Services

Description: Existing Catering Kitchen located in Officer's Quarters Building will be remodeled/expanded.

ARCHITECTURAL

Occupants 2
 Floor QT
 Base QT
 Wall cwt
 Ceiling gwb
 Doors
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework ●

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets ●
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock ●
 Security ●
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink ●
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 304 - Visitor Center Store - 1,000 NSF

Department: Visitor Services
 Adjacencies: Lobby, Entry/Exit doors

ARCHITECTURAL

Occupants	Varies
Floor	carpet
Base	wood
Wall	gwb
Ceiling	gwb
Doors	wood
Natural Light	●
Other	

OWNER-FURNISHED EQUIPMENT

PC	
Printer	
Copier	
Desk	
Chairs	
Table	
Shelving	
Shades	●
Other	Point of Sale

DATA / COMMUNICATIONS

Telephone	●
Data Port	●
Other	

AUDIO / VISUAL

Projector	
Camera	
Microphones	
Podium / Controls	

SPECIALITIES

Closet	
Tackboard	
Markerboard	
Chalkboard	
Projection Screen	
Built-in Casework	●

ELECTRICAL

Lighting Type	incan.
Lighting Level	50 fc
Task Lighting	
Zoned Lighting	
Duplex Outlets	●
Service Outlets	
Wiremold	
Data Outlets	
Fiber	
Ethernet / copper	●

Wireless Sysyem	●
Dedicated Power	
Surge Protection	
Emergency Power	
Clock	●
Security	●
Surveillance	●
Other	

MECHANICAL

Heating	●
Cooling	●
Temperature Range	68-74
Humidity Control	35%-55%
Exhaust	
Relative Pressure	
Other	

PLUMBING

Kitchenette	
Sink	
WC	
Other	

FIRE PROTECTION

Sprinkler	●
Smoke / Heat Detection	●
Other	

section

3.4 305 - Store Manager's Office at Visitor Center - 150 NSF

Department: Visitor Services
 Adjacencies: Visitor Center Store
 Description: Office to include safe and window to display area.

ARCHITECTURAL

Occupants 1
 Floor carpet
 Base vinyl
 Wall gwb
 Ceiling AT
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer ●
 Copier
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades ●
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework ●

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance ●
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 306 - Store Storage at Visitor Center - 350 NSF

Department: Visitor Services

Adjacencies: Store, Store Manager's Office

ARCHITECTURAL

Occupants 0
 Floor carpet
 Base vinyl
 Wall gwb
 Ceiling AT
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table ●
 Shelving ●
 Shades
 Other Point of sale/
 Data outlet

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework ●

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 307 - Public Restroom at Visitor Center - Women - 330 NSF

Department: Visitor Services
 Adjacencies: Lobby, Coat Room
 Description: 6 stalls

ARCHITECTURAL

Occupants	Varies
Floor	cft
Base	cwt
Wall	cwt
Ceiling	gwb
Doors	wood
Natural Light	
Other	

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type	fluor
Lighting Level	50 fc
Task Lighting	
Zoned Lighting	oc sensor
Duplex Outlets	●
Service Outlets	
Wiremold	
Data Outlets	
Fiber	
Ethernet / copper	

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance

hand dryers

MECHANICAL

Heating	●
Cooling	●
Temperature Range	68-74
Humidity Control	35%-55%
Exhaust	●
Relative Pressure	negative
Other	

PLUMBING

Kitchenette
 Sink
 WC
 Other

floor drain, sensors @ toilet/lavs

FIRE PROTECTION

Sprinkler	●
Smoke / Heat Detection	●
Other	

section

3.4 308 - Public Restroom at Visitor Center - Men- 270 NSF

Department: Visitor Services
 Adjacencies: Lobby, Coat Room
 Description: 5 stalls

ARCHITECTURAL

Occupants Varies
 Floor cft
 Base cwt
 Wall cwt
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink ●
 WC ●
 Other floor drain, sensors @ toilet/lavs

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 309 - Public Restroom at Long Barracks - Women - 670 NSF

Department: Visitor Services
 Adjacencies: Multipurpose Room in Long Barracks
 Description: Located in Long Barracks; accessible restroom/changing area and 2 ADA lockers; restroom to be used by staff on break.

ARCHITECTURAL

Occupants Varies
 Floor cft
 Base cwt
 Wall cwt
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance

hand dryers

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink ●
 WC ●
 Other floor drain, sensors @ toilet/lavs

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 310 - Public Restroom at Long Barracks - Men- 670 NSF

Department: Visitor Services
 Adjacencies: Multipurpose Room in Long Barracks
 Description: Located in Long Barracks; accessible restroom/changing area and 2 ADA lockers; restroom to be used by staff on break.

ARCHITECTURAL

Occupants Varies
 Floor cft
 Base cwt
 Wall cwt
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance

hand dryers

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink ●
 WC ●
 Other floor drain, sensors @ toilet/lavs

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 311 - Coats at Visitor Center - 150 NSF

Department: Visitor Services
 Adjacencies: Lobby, Public Restrooms
 Description: Space for 80 coats (self service)

ARCHITECTURAL

Occupants varies
 Floor hard surface
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet coat rack
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework lockers

ELECTRICAL

Lighting Type incad.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance

ATM

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 312 - Family Restroom at Visitor Center - 60 NSF

Department: Visitor Services
 Adjacencies: Lobby, Coat Room, Public Restrooms
 Description: Family Restroom could be used by staff if offices located on same level.

ARCHITECTURAL

Occupants Varies
 Floor cft
 Base cwt
 Wall cwt
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework changing table

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

MECHANICAL

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance
 hand dryers
 Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink ●
 WC ●
 Other floor drain, sensors @ toilet/lavs

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 401 - Multipurpose Room A at Visitor Center - 700 NSF

Department: Education
 Adjacencies: Visitor Services
 Description: Needs sink/garbage disposal; convertible to lunch room; staging area for caterers; staff meetings could occur here.

ARCHITECTURAL

Occupants varies
 Floor hard surface
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades ●
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework lockers, caterer's counter/casework

ELECTRICAL

Lighting Type fluor./incad.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●
 Wireless Sysyem ●

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette ●
 Sink ●
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 402 - Multipurpose Room B at Long Barracks - 670 NSF

Department: Education
 Adjacencies: Multipurpose Room C, Public Restrooms
 Description: Located in Long Barracks; flexible space with capacity of 50 (audience style), 30 (@ tables); wired for Internet/AV programming; area may be used as immersive program environments; finishes should be neutral.

ARCHITECTURAL

Occupants varies
 Floor wood
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor./incad.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●
 Wireless Sysyem ●
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 403 - Multipurpose Room C at Long Barracks- 670 NSF

Department: Education
 Adjacencies: Multipurpose Room B, Public Restrooms
 Description: Located in Long Barracks; flexible space with capacity of 50 (audience style), 30 (@ tables); wired for Internet/AV programming; area may be used as immersive program environments; finishes should be neutral.

ARCHITECTURAL

Occupants	varies
Floor	wood
Base	wood
Wall	gwb
Ceiling	gwb
Doors	wood
Natural Light	●
Other	

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone	●
Data Port	●
Other	

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type	fluor./incad.
Lighting Level	50 fc
Task Lighting	
Zoned Lighting	
Duplex Outlets	●
Service Outlets	
Wiremold	
Data Outlets	
Fiber	
Ethernet / copper	●
Wireless Sysyem	●
Dedicated Power	
Surge Protection	
Emergency Power	
Clock	
Security	●
Surveillance	

MECHANICAL

Heating	●
Cooling	●
Temperature Range	68-74
Humidity Control	
Exhaust	
Relative Pressure	
Other	

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler	
Smoke / Heat Detection	●
Other	

section

3.4 404 - Multipurpose Room D at Officer's Quarters - 616 NSF

Department: Education

Description: Located in the Officer's Quarters; space will be electrically and mechanically updated.

ARCHITECTURAL

Occupants	varies
Floor	wood
Base	wood
Wall	gwb
Ceiling	gwb
Doors	wood
Natural Light	●
Other	

OWNER-FURNISHED EQUIPMENT

PC
Printer
Copier
Desk
Chairs
Table
Shelving
Shades
Other

DATA / COMMUNICATIONS

Telephone	●
Data Port	●
Other	

AUDIO / VISUAL

Projector
Camera
Microphones
Podium / Controls

SPECIALITIES

Closet
Tackboard
Markerboard
Chalkboard
Projection Screen
Built-in Casework

ELECTRICAL

Lighting Type	fluor./incad.
Lighting Level	50 fc
Task Lighting	
Zoned Lighting	
Duplex Outlets	●
Service Outlets	
Wiremold	
Data Outlets	
Fiber	
Ethernet / copper	●
Wireless Sysyem	●

Dedicated Power
Surge Protection
Emergency Power
Clock
Security
Surveillance

MECHANICAL

Heating	●
Cooling	●
Temperature Range	68-74
Humidity Control	
Exhaust	
Relative Pressure	
Other	

PLUMBING

Kitchenette
Sink
WC
Other

FIRE PROTECTION

Sprinkler	
Smoke / Heat Detection	●
Other	

section

3.4 405 - Table/Chair Storage at Long Barracks - 160 NSF

Department: Education
 Adjacencies: Program Manager's Office
 Description: Located in the Long Barracks

ARCHITECTURAL

Occupants 0
 Floor wood
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 501 - Site Manager's Office at Visitor Center - 150 NSF

Department: Administration

Adjacencies: Administrative Offices

ARCHITECTURAL

Occupants 1
 Floor carpet
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer
 Copier
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades ●
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting ●
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 502 - Maintenance Office at Visitor Center - 150 NSF

Department: Administration
 Adjacencies: Administrative Offices
 Description: Contains building monitors/building systems controls.

ARCHITECTURAL

Occupants 1
 Floor carpet
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer
 Copier
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades ●
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting ●
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance ●
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 503 - Administrative Assistant's Office at Visitor Center - 200 NSF

Department: Administration
 Adjacencies: Administrative Offices
 Description: Includes workspace, area for Xerox/fax and supplies

ARCHITECTURAL

Occupants 1
 Floor carpet
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer ●
 Copier ●
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades ●
 Other reception chairs

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet ●
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework ●

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 504 - Staff Lounge/Kitchenette at Visitor Center - 200 NSF

Department: Administration
 Adjacencies: Administrative Offices
 Description: Includes mail slots

ARCHITECTURAL

Occupants 6
 Floor carpet/
 vinyl
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs ●
 Table ●
 Shelving ●
 Shades ●
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard ●
 Chalkboard
 Projection Screen
 Built-in Casework ●

ELECTRICAL

Lighting Type fluor./incan.
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem ●

Dedicated Power
 Surge Protection
 Emergency Power
 Clock ●
 Security ●
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette ●
 Sink ●
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

section

3.4 505 - Staff Library at Long Barracks - 330 NSF

Department: Administration
 Adjacencies: Dayroom/Lounge
 Description: Located in the Long Barracks; space used for program research and training materials; will need shelves, small table with chairs, Internet access.

ARCHITECTURAL

Occupants	8
Floor	wood
Base	wood
Wall	gwb
Ceiling	gwb
Doors	wood/
Natural Light	●
Other	

OWNER-FURNISHED EQUIPMENT

PC	
Printer	
Copier	
Desk	
Chairs	●
Table	●
Shelving	●
Shades	
Other	

DATA / COMMUNICATIONS

Telephone	●
Data Port	●
Other	

AUDIO / VISUAL

Projector	
Camera	
Microphones	
Podium / Controls	

SPECIALITIES

Closet	
Tackboard	●
Markerboard	●
Chalkboard	
Projection Screen	
Built-in Casework	●

ELECTRICAL

Lighting Type	fluor./ incan. 50 fc
Lighting Level	
Task Lighting	
Zoned Lighting	
Duplex Outlets	●
Service Outlets	
Wiremold	
Data Outlets	
Fiber	
Ethernet / copper	●
Wireless Sysyem	●

Dedicated Power	
Surge Protection	
Emergency Power	
Clock	●
Security	●
Surveillance	
Other	

MECHANICAL

Heating	●
Cooling	●
Temperature Range	68-74
Humidity Control	
Exhaust	●
Relative Pressure	
Other	

PLUMBING

Kitchenette	
Sink	
WC	
Other	

FIRE PROTECTION

Sprinkler	
Smoke / Heat Detection	●
Other	

section

3.4 506 - Dayroom/Lounge at Long Barracks - 670 NSF

Department: Administration

Adjacencies: Staff Library/Offices

Description: Located in the Long Barracks; 2 refrigerators, 2 microwaves, sinks, storage and tables to seat 20 plus room for additional 16 chairs along walls.

ARCHITECTURAL

Occupants	20
Floor	wood
Base	wood
Wall	gwb
Ceiling	gwb
Doors	wood
Natural Light	●
Other	

OWNER-FURNISHED EQUIPMENT

PC	
Printer	
Copier	
Desk	
Chairs	●
Table	●
Shelving	
Shades	
Other	

DATA / COMMUNICATIONS

Telephone	●
Data Port	●
Other	

AUDIO / VISUAL

Projector	
Camera	
Microphones	
Podium / Controls	

SPECIALITIES

Closet	
Tackboard	●
Markerboard	●
Chalkboard	
Projection Screen	
Built-in Casework	●

ELECTRICAL

Lighting Type	fluor./ incan. 50 fc
Lighting Level	
Task Lighting	
Zoned Lighting	
Duplex Outlets	●
Service Outlets	
Wiremold	
Data Outlets	
Fiber	
Ethernet / copper	●
Wireless Sysyem	●

Dedicated Power	
Surge Protection	
Emergency Power	
Clock	●
Security	●
Surveillance	
Other	

MECHANICAL

Heating	●
Cooling	●
Temperature Range	68-74
Humidity Control	
Exhaust	●
Relative Pressure	
Other	

PLUMBING

Kitchenette	●
Sink	●
WC	
Other	

FIRE PROTECTION

Sprinkler	
Smoke / Heat Detection	●
Other	

section

3.4 507 - Program Manager's Office at Long Barracks - 210 NSF

Department: Administration
 Adjacencies: Multipurpose Room
 Description: Located in the Long Barracks

ARCHITECTURAL

Occupants 1
 Floor wood
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer
 Copier
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting ●
 Zoned Lighting oc
 Duplex Outlets sensor
 Service Outlets ●
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 508 - Site Supervisor's Office 1 at Long Barracks - 90 NSF

Department: Administration
 Adjacencies: Work Area, Dayroom/Lounge
 Description: Open office located in the Long Barracks

ARCHITECTURAL

Occupants 1
 Floor wood
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer
 Copier
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting ●
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 509 - Site Supervisor's Office 2 at Long Barracks - 90 NSF

Department: Administration
 Adjacencies: Work Area, Dayroom/Lounge
 Description: Open office located in the Long Barracks.

ARCHITECTURAL

Occupants 1
 Floor wood
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer
 Copier
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting ●
 Zoned Lighting oc
 Duplex Outlets sensor
 Service Outlets ●
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 510 - Site Supervisor's Office 3 at Long Barracks - 90 NSF

Department: Administration
 Adjacencies: Work Area, Dayroom/Lounge
 Description: Open office located in the Long Barracks.

ARCHITECTURAL

Occupants 1
 Floor wood
 Base wood
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light ●
 Other

OWNER-FURNISHED EQUIPMENT

PC ●
 Printer
 Copier
 Desk ●
 Chairs ●
 Table ●
 Shelving ●
 Shades
 Other

DATA / COMMUNICATIONS

Telephone ●
 Data Port ●
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level 50 fc
 Task Lighting ●
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper ●

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 511 - Work Area at Long Barracks - 400 NSF

Department: Administration
 Adjacencies: Site Supervisors' Offices
 Description: Located in the Long Barracks; plan for space for copier, printer, phone/Internet, files; must keep interior access throughout Long Barracks.

ARCHITECTURAL

Occupants	varies
Floor	wood
Base	wood
Wall	gwb
Ceiling	gwb
Doors	wood
Natural Light	●
Other	

OWNER-FURNISHED EQUIPMENT

PC	
Printer	●
Copier	●
Desk	●
Chairs	●
Table	●
Shelving	●
Shades	
Other	

DATA / COMMUNICATIONS

Telephone	●
Data Port	●
Other	

AUDIO / VISUAL

Projector	
Camera	
Microphones	
Podium / Controls	

SPECIALITIES

Closet	
Tackboard	
Markerboard	
Chalkboard	
Projection Screen	
Built-in Casework	●

ELECTRICAL

Lighting Type	fluor.
Lighting Level	50 fc
Task Lighting	●
Zoned Lighting	oc sensor
Duplex Outlets	●
Service Outlets	
Wiremold	
Data Outlets	
Fiber	
Ethernet / copper	●

Wireless Sysyem

Dedicated Power	
Surge Protection	
Emergency Power	
Clock	
Security	●
Surveillance	
Other	

MECHANICAL

Heating	●
Cooling	●
Temperature Range	68-74
Humidity Control	
Exhaust	
Relative Pressure	
Other	

PLUMBING

Kitchenette	
Sink	
WC	
Other	

FIRE PROTECTION

Sprinkler	
Smoke / Heat Detection	●
Other	

section

3.4 512 - Women's Locker Room at Long Barracks - 231 NSF

Department: Administration
 Adjacencies: Costume Storage
 Description: Existing Women's Locker Room, located in the Long Barracks, will be expanded to include 62 lockers; need adequate space for changing.

ARCHITECTURAL

Occupants Varies
 Floor cft
 Base vinyl
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 513 - Men's Locker Room at Long Barracks - 210 NSF

Department: Administration
 Adjacencies: Costume Repair
 Description: Men's Locker Room will be relocated in the Long Barracks; 19 lockers; needs adequate space for shared men's clothing.

ARCHITECTURAL

Occupants Varies
 Floor cft
 Base vinyl
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem
 Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 514 - Costume Repair at Long Barracks - 98 NSF

Department: Administration
 Adjacencies: Men's Locker Room, Women's Locker Room
 Description: Located in the Long Barracks; needs work area for costume repair and ironing.

ARCHITECTURAL

Occupants Varies
 Floor cft
 Base vinyl
 Wall gwb
 Ceiling gwb
 Doors wood
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor
 Lighting Level 50 fc
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control
 Exhaust ●
 Relative Pressure negative
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler
 Smoke / Heat Detection ●
 Other

section

3.4 601 - Building Storage at Visitor Center - 250 NSF

Department: Facilities/Operation

ARCHITECTURAL

Occupants 0
 Floor sealed
 conc
 vinyl
 Base
 Wall gwb
 Ceiling gwb
 Doors hm
 Natural Light
 Other

OWNER-FURNISHED EQUIPMENT

PC
 Printer
 Copier
 Desk
 Chairs
 Table
 Shelving ●
 Shades
 Other

DATA / COMMUNICATIONS

Telephone
 Data Port
 Other

AUDIO / VISUAL

Projector
 Camera
 Microphones
 Podium / Controls

SPECIALITIES

Closet
 Tackboard
 Markerboard
 Chalkboard
 Projection Screen
 Built-in Casework

ELECTRICAL

Lighting Type fluor.
 Lighting Level
 Task Lighting
 Zoned Lighting oc sensor
 Duplex Outlets ●
 Service Outlets
 Wiremold
 Data Outlets
 Fiber
 Ethernet / copper

Wireless Sysyem

Dedicated Power
 Surge Protection
 Emergency Power
 Clock
 Security ●
 Surveillance
 Other

MECHANICAL

Heating ●
 Cooling ●
 Temperature Range 68-74
 Humidity Control 35%-55%
 Exhaust
 Relative Pressure
 Other

PLUMBING

Kitchenette
 Sink
 WC
 Other

FIRE PROTECTION

Sprinkler ●
 Smoke / Heat Detection ●
 Other

chapter

4 Building Narrative

section

4.1 Approach

As Minnesota's first National Historic Landmark, Fort Snelling is one of the state's most significant historic sites. Situated on a limestone bluff high above the Mississippi and Minnesota Rivers, Fort Snelling is about the development of the Northwest and its significance as a military post and main outpost for transportation, protection and commerce in the northern United States.

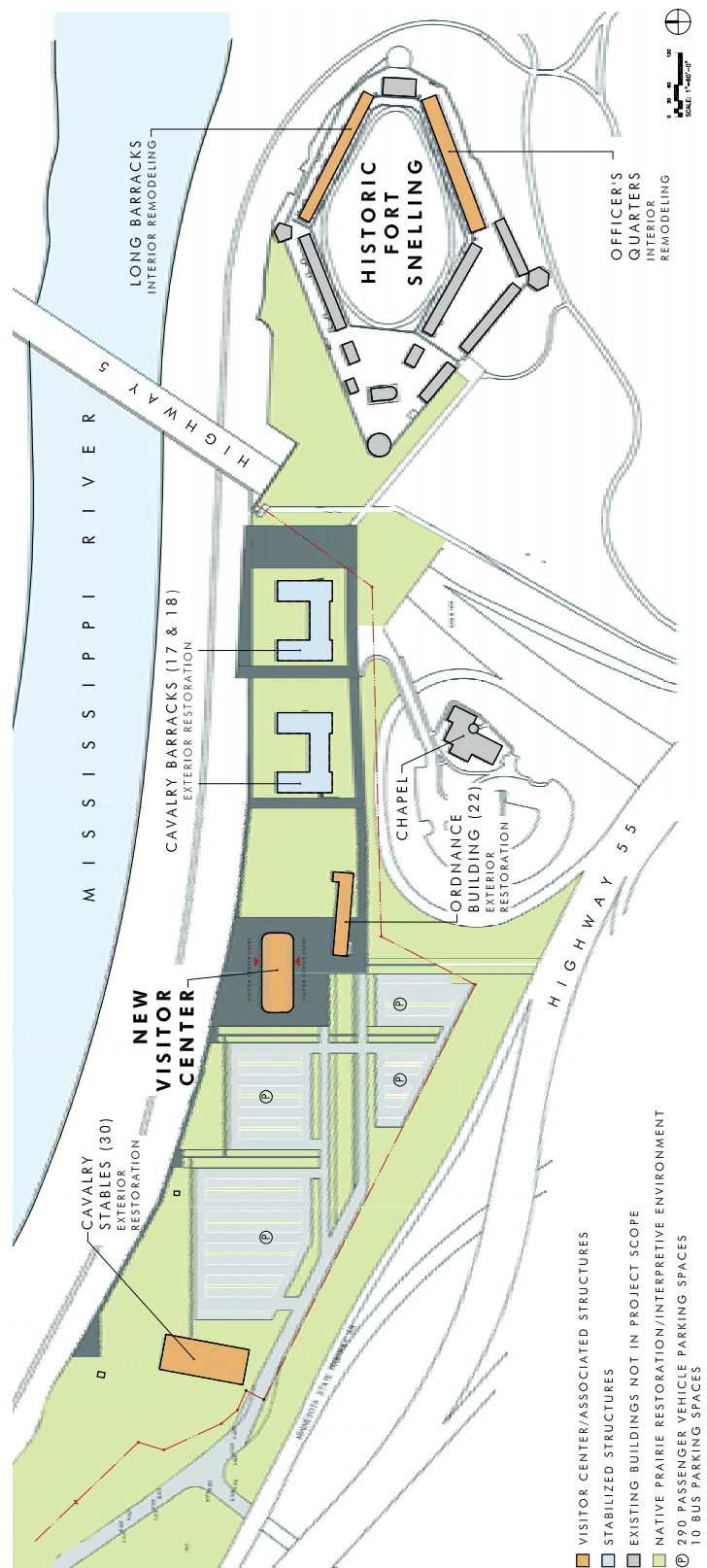
We have identified the following priorities to guide our approach for the new Fort Snelling Visitor Center project. First, create a state-of-the-art Visitor Center that celebrates the history of Fort Snelling by finding the aesthetic, technical, and programmatic solutions that tell the stories that have yet to be told. Secondly, produce a cultural destination that preserves, stabilizes and honors the existing historic buildings with an emphasis on exterior historic patterning. Third, craft new architectural and landscape connectors that convey the vitality of the 21st century and compliment the sublime beauty of the existing historic context. Lastly, fashion a sustainable Visitor Center that expresses functional and environmentally sound design principles with an emphasis on authentic, natural materials, and efficient, economical building systems.

Over the last two decades, contemporary architecture has been used as a means of drawing visitors to cultural institutions that need to expand and reenergize. Great architecture has the ability to excite, captivate and stimulate. For the new Visitor Center, the new architectural language will not only highlight and honor the distinctive qualities of the historic buildings but also create a strong new identity for the complex. The river, the bluff, the legacy of the site and the landscape will shape the new Visitor Center and this vision in turn will rejuvenate Fort Snelling and the visitor's experience.

Imperative to the success of the new Historic Fort Snelling Visitor Center's plan will be the preservation of the existing structures adjacent to the Historic Fort. Specifically, the Cavalry Barracks (17 and 18), Cavalry Stable (30) and the Ordnance Building (22) will be restored to their original form and condition. In addition, the entire site will be reenergized by strengthening the physical programmatic relationships between the Historic Fort and the new Visitor Center. Ultimately, the site will be transformed into a multi-faceted experience with a wide variety of things to do and see.

section

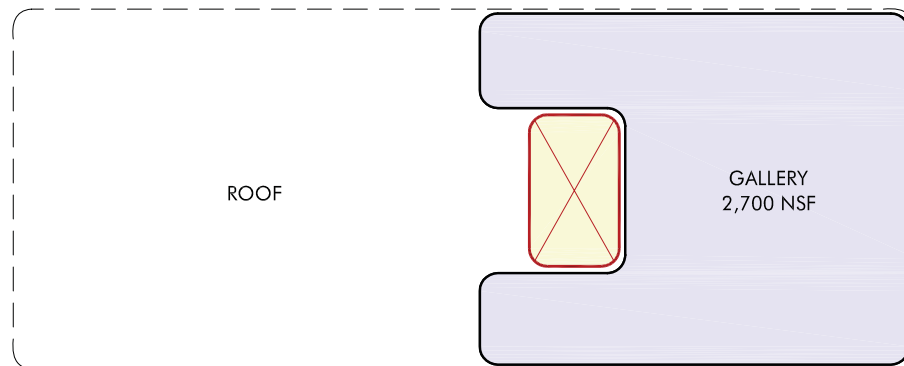
4.2 Diagrams - Site Plan



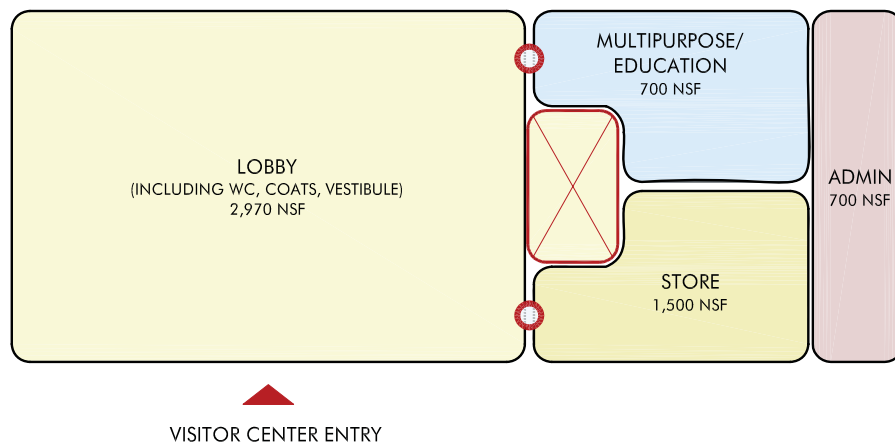
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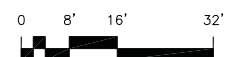
4.2 Diagrams - New Visitor Center



2 SECOND FLOOR

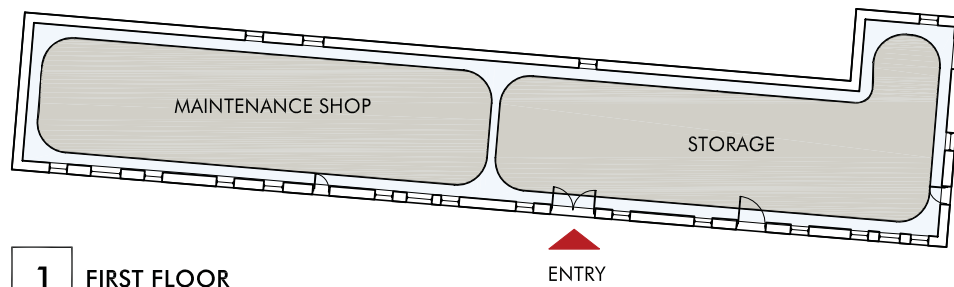


1 FIRST FLOOR



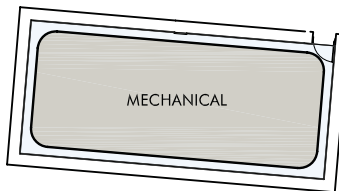
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4.2 Diagrams - Ordnance Building (22)



1 FIRST FLOOR

Available GSF @ Building 22 = 4,470 GSF

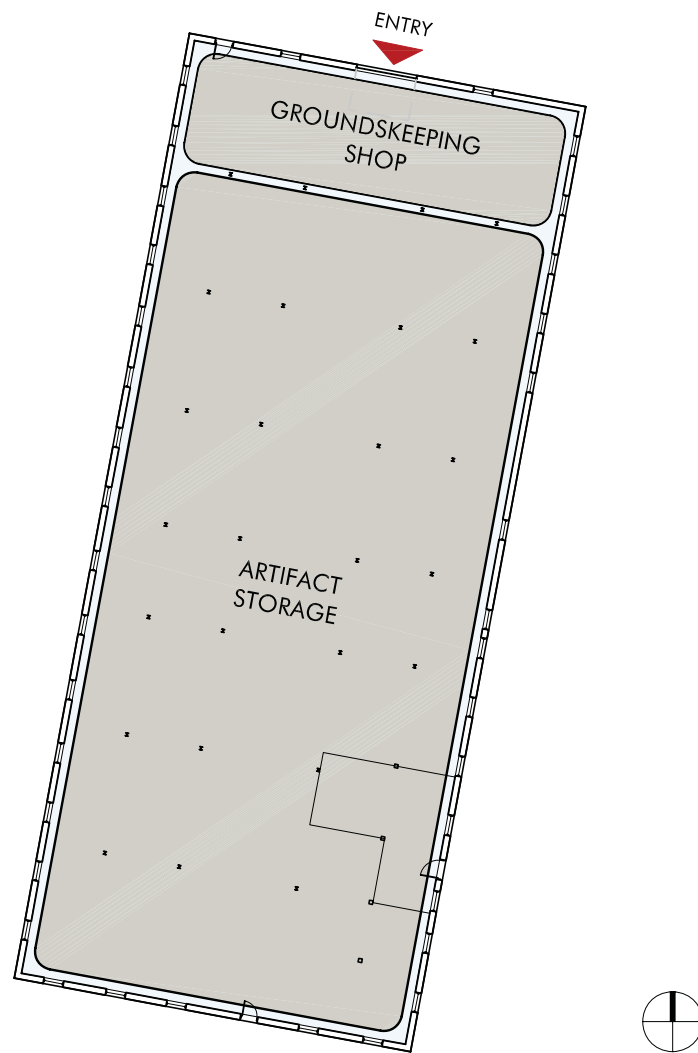


LL LOWER LEVEL

Available GSF @ Building 22 = 1,442 GSF

section

4.2 Diagrams - Cavalry Stables (Building 30)

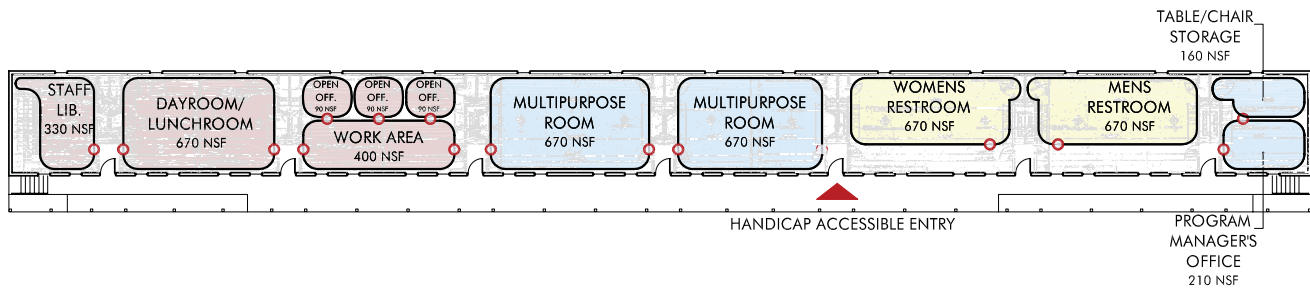


Available GSF @ Building 30 = 12,623 GSF (including loft)

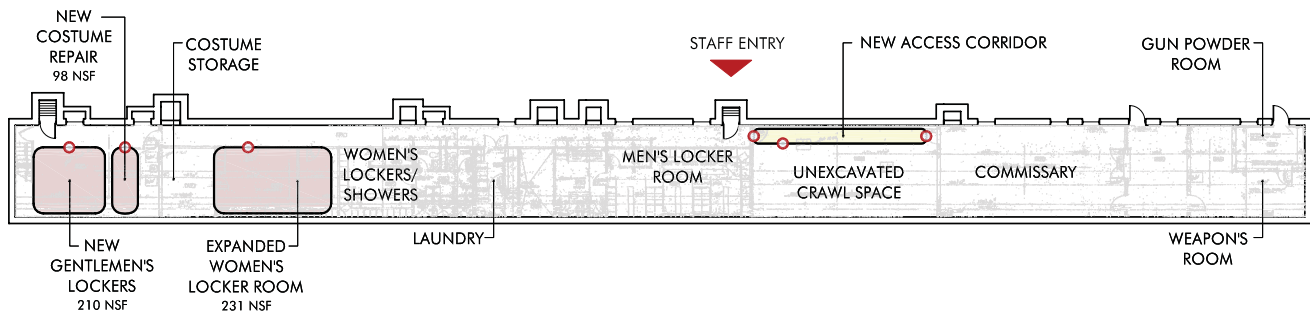


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4.2 Diagrams - Long Barracks



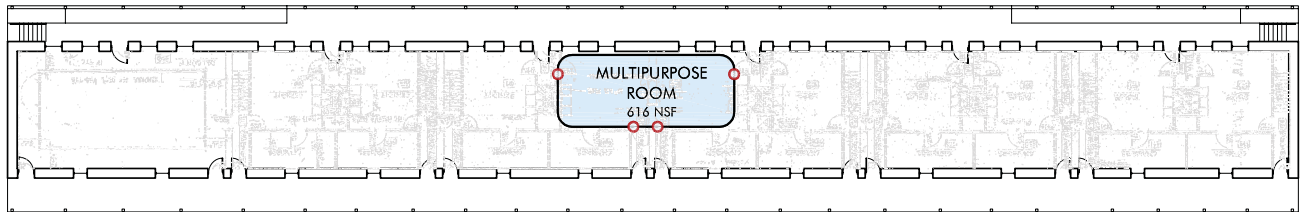
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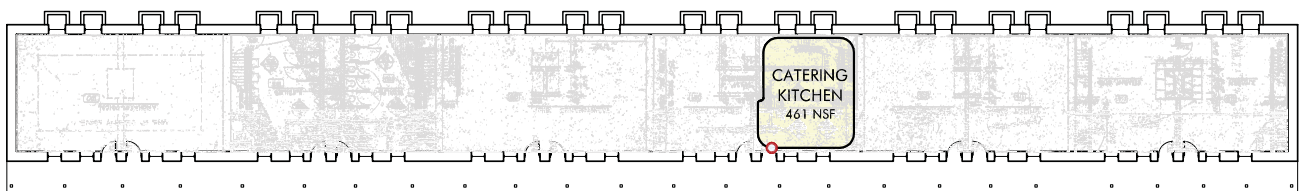
LL LOWER LEVEL

section

4.2 Diagrams - Officer's Quarters



1 FIRST FLOOR



LL LOWER LEVEL

chapter

5 Site

section

5.1 Site Analysis

General Site Conditions

The project study area at Fort Snelling is approximately fourteen acres with direct connections to Minneapolis, St. Paul, and the Airport. The site is long and thin with nearly 2,000 linear feet of river frontage, while at its widest, the project study area is only 415 feet deep.

Historic Fort Snelling is bounded by the Mississippi River and associated river bluffs directly to the North, the busy vehicular interchange of Hwy 55/62 to the south and west, and by the Fort Snelling State Park to the east. Between the study area and the Historic Fort, the site is divided by Hwy 5, which sits below grade.

Due to its river bluff location, the study area is topographically level with only minor variations in elevation. The greatest elevation changes occur at southwest corner where the present entry drive is depressed below the elevation of Building 30, and near the existing Visitor Center where a mounded prairie sits adjacent to Building 18. At the site's northern edge, the Mississippi River runs more than one hundred feet below the bluff edge.

In addition to the historic structures, the major site feature at Fort Snelling is the large parking lot. With a capacity of approximately 300 vehicles, it is a dominant visual feature as one enters the site. The parking lot lies directly east of Building 30, claiming all available land between Building 30 and the existing Visitor Center. The parking lot location has direct impact on the river bluff.

Adjacent to the parking lot is a basic pedestrian circulation system which moves visitors from the parking lot to the river bluff, and from the parking to the Historic Fort via a road and path adjacent to the south façade of Buildings 18 and 17 through a restored prairie landscape.

The Fort Snelling site is rich in vegetative diversity. The reintroduction of native tall-grass prairie with associated wildflowers represents the dominant ground-cover on site, with mixed deciduous trees marking the river bluff. The south edge of the site employs a coniferous planting scheme with limited success as a visual buffer.

Site Issues

The Fort Snelling project study area has multiple issues that can be solved through a successful masterplanning effort. The main land-based issues hindering the site's performance include (1) the visual and audible impact of Hwy 55, (2) the vehicular circulation system including the entry drive and main parking lot, (3) the pedestrian circulation system both at the river bluff and the south edge of the property, (4) vehicular access to Fort Snelling Chapel, Buildings 17 and 18 and (5) the limited connection to the Mississippi River.

section

5.1 Site Analysis

The visual and audible impact of Highway 55 is currently a central component of Fort Snelling's entry experience. The highway sits considerably higher than the site's western half with limited visual screening. The entry drive moves along this edge forcing the visitor's initial Fort Snelling experience to be one of parking lot and freeway instead of historic structures and river. Movement into the parking lot and out of the car is not easily understood, as the circulation system provides few physical gestures or clues as to how a visitor should navigate the site. The pedestrian circulation system is strongest with linear walks along the river and to the Historic Fort. The system has limited success in its connections to the existing Visitor Center, Building 30, and the parking lot. Within this system the Mississippi River's location and how to reach it are not clear on arrival to the site.

Massing Proposals

The above issues can be successfully addressed through the development of a site masterplan. The masterplan will integrate the new Visitor Center and associated uses into the site, implement a clear circulation system, connect people to the river, the new Visitor Center and the Historic Fort, create exterior gathering spaces, and reflect Minnesota's native landscapes.

The predesign site massing proposal grounds the new Visitor Center through a generous plaza connecting the north and south edges of the site. The plaza functions as the hub of the site, demarcating the Visitor Center as its main point and emphasizing connections to the river and surrounding historic structures.

West of the Visitor Center plaza, the parking lot is redesigned to create an entry experience reflective of the Fort, while emphasizing clear and deliberate circulation, and fostering easily understood connections to the Visitor Center, the river, and the Historic Fort.

The parking lot is bisected laterally by an entry drive linking the existing 'T' intersection with the Visitor Center plaza. This loop entry drive features a large green boulevard centered on Building 22, as one approaches from the west. Vehicles can loop in front of Building 22 and drop off passengers at the new Visitor Center and return west to the parking lot. This entry loop and boulevard is a dominant physical marker establishing a clear vocabulary for the circulation system. The parking lot accommodates 290 vehicles and 10 school buses. The parking lot is divided into bays to appear smaller and work cohesively with the scale of the Fort. Between each parking bay, oriented North/South, green bands reach from the parking areas to the river. The pedestrian circulation system from parking lot to river is sited within these green bands.

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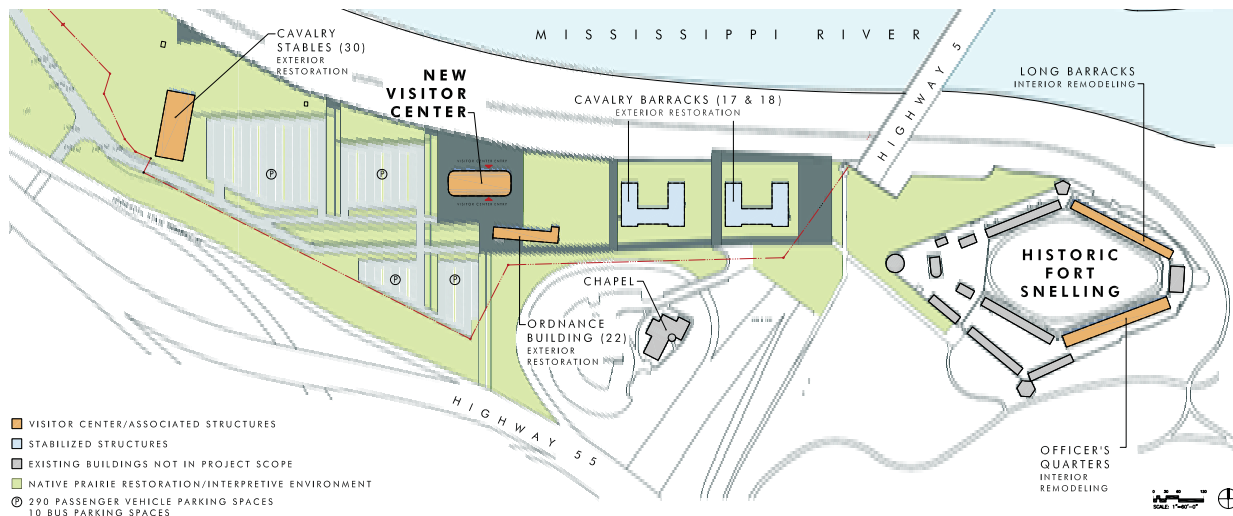
section

5.1 Site Analysis

The pedestrian circulation system is simple, focusing on movement north to the River from the parking lot, and East/West lateral movement connecting all site and structural elements. A key feature of the pedestrian system is a promenade with plazas adjacent to the river bluff. This walk would stretch the length of the site offering river connections from the Historic Fort area west to Building 30.

The circulation system and Visitor Center plaza establish a framework for simple and deliberate landscape gestures. The planted acreage should aid in the connection to the river and Minnesota's natural history, simply highlight the new architecture through circulation cues, and act as a visual and noise buffer along the south property edge. Minnesota's native plant communities should be emphasized.

Site Plan



chapter

6 Engineering Narratives

section

6.1 CDG Existing Fort Snelling Visitor Center Evaluation Report

Introduction

Located at Historic Fort Snelling, St. Paul, Minnesota the Fort Snelling Visitor Center was built in 1980. Designed in the Brutalist style, the building is a subterranean two-story structure constructed primarily of cast-in-place concrete and is sited in the bluffs above the Mississippi river. The structure has been in continued use since 1980 and has not received major updates or renovations. The building has experienced various types of moisture issues over the years, culminating recently in a mold-related employee complaint. It is our opinion that the current building environment does not pose a hazard to the average visitor. However the extent of the visible mold and the chance of larger un-seen mold colonies could pose a health risk to more sensitive “full-time” occupants. This adds great urgency to the strategic question of the building’s future.

Collaborative Design Group was retained by Minnesota Historical Society to perform a building evaluation of the Visitor Center. Previous evaluations, including the 2003 Master Plan, were based primarily on building space and configuration needs for programming and staff functions.

The purpose of this evaluation was to review and document existing conditions at the Visitor Center to compare two options: invest in a major reconstruction of the existing Visitors Center or move the operations into the vacant Buildings 17 and 18. Architectural, Structural, and Heating, Ventilation and Air Conditioning (HVAC) systems were evaluated in this building review.

Executive Summary

METHODOLOGY

The building evaluation took place in the summer and fall of 2004. The evaluation was conducted through document review, site visits, and dialogue with staff and maintenance personnel. Site visits were conducted in varying weather conditions, including days of heavy rain, to gather a more accurate portrait of how the building currently functions. The intent of this summary is to provide an overview of the following report. The report must be reviewed in its entirety for a complete understanding of our conclusions and recommendations.

DATA

The structure appears to be in average condition, exhibiting some problems. These include cracks in the concrete walls and slabs, which are evident throughout the interior and exterior of the building. Some cracks appear large and significant, but pose no immediate threat of structural instability or failure. There is evidence of movement in some of the retaining wall panels. Staining and efflorescence present throughout the structure give evidence of chronic moisture infiltration.

Other issues range from minor seasonal flooding to a constant stream of water flowing into the elevator shaft. In addition, occasional drainage system back-ups

section

6.1 CDG Existing Fort Snelling Visitor Center Evaluation Report

result in lower level flooding. These issues, in part, fostered moisture infiltration into the HVAC system. This HVAC system is over 24 years old and has reached the end of its expected useful life. Design considerations from 25 years ago do not reflect today's concerns regarding indoor air quality. To provide a HVAC system that meets today's indoor air quality design standards would require the replacement of the entire HVAC system an option not financially cost effective.

The end result is that the building as a whole has relative high humidity and shows significant water damage in many areas. There is no clear evidence whether the ongoing water infiltration is due to static pressure in the bluff, the location of the building on an underground spring, the fact that the building roof is the lowest point on the site, or more likely a combination of issues.

CONCLUSION

The type and scope of damage present in the structure did not occur within the last five years, rather the Visitor Center at Fort Snelling has been in an accelerated state of decline since it was put into operation in 1980. While a subterranean building has its place, it has proved impractical and costly in this application. Submerging the building into porous bluffs littered with springs with an ineffective drainage plan has relegated this structure to the role of catch basin for water.

The results of this building assessment have a direct and significant impact on the 2003 Master Plan which identified a substantial expansion of the current Visitor Center to meet the programmatic needs of the Fort while developing Buildings 17 and 18 for a hotel and conference center. The original building space review indicated that the only way the Visitors Center could meet future programming needs was through construction of a substantial addition. However, due to the mechanical and structural issues outlined in this current report, the previous conclusions reached as to the cost effectiveness for continued use of the building are changed.

Investing substantial amounts of money to replace the HVAC system, remove the soil from on top of and around the structure, and redesign the drainage system would leave the Historical Society with a building that is wholly inadequate to meet their needs in terms of size and function. In these circumstances it is apparent that adding to the structure (as originally proposed) would be throwing "good money after bad." If rehabilitated, the underground structure will begin its accelerated decline again, and MHS would be faced with this same discussion in 15 years.

section

6.1 CDG Existing Fort Snelling Visitor Center Evaluation Report

In light of the recent building issues it is the recommendation of Collaborative Design Group that the Owner not allocate any future investment towards long-term occupation of the current Visitor Center. Furthermore, we recommend the rehabilitation of Buildings 17 and 18 for the new Visitor Center. Recommendations for remedial steps appear at the end of this report.

section

6.2 Civil Narrative

Existing Site Infrastructure

EXISTING DRAINAGE

The proposed construction will affect two watersheds. In this report they are referred to as east and west. The drainage divides between the east and west watersheds that appears to occur around Building 22. Based on a visual review of impervious areas on the survey, most (75%) of the project area drainage goes to the west system.

•West Watershed

The existing parking lot has a gradual pitch south towards Highway 55, where it is collected in a concrete gutter. Beneath this gutter is a storm pipe system which was constructed with the parking lot improvements in 1978. This storm pipe system directs the runoff to the west, then north where it likely connects to a deep storm tunnel northeast of Building 30. This connection is not shown on any survey available to HGA; however the end of the pipe on the 1999 survey coincides with a deep storm tunnel location shown on the 1978 survey. Storm sewer systems are commonly designed for 5 or 10 year return frequency storm events. Less frequent storm events with greater intensity will exceed the storm system capacity then overland flow occurs. It appears the overflow flow for the west basin will go down the entrance road to the Highway 55 ramp, thereby not threatening the river bank. There is no storm detention, other than one small infiltration area added in conjunction with a small parking lot addition constructed southwest of Building 22 around 1999.

•East Watershed

The east watershed has two destinations for the runoff; one a "CMP culvert", the other is via overland flow. An inlet located near the foot of the bridge going to the Chapel has the adjacent CMP culvert outlet evident. Approximately one third of the East Watershed drainage goes to the CMP culvert that protrudes out a rock bluff dropping to Highway 5 below. It appears this pipe has been eroding the limestone rock over many years; work on the site may trigger some storm pipe improvements. The other two-thirds of the drainage continue to culverts east of Building 17. This drainage route east of Building 17 and south of the Fort is primarily overland flow. It uses some infiltration areas and swales lined with Rip Rap and vegetation. This route uses occasional shallow culverts to get over the Highway 5 Bridge and under bike paths. This drainage route was recently developed around 1999 as part of the bike path project.

EXISTING UTILITIES

After reviewing a 1978 survey by Harry S. Johnson, and a 1999 survey by Kemper & Associates, we have a general understanding of utilities locations. However, the analysis required subjective opinions, for example, the 1999 survey shows waterlines in service that are labeled as abandoned in the 1978 survey, which leads to an uncertainty of existing conditions.

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section

6.2 Civil Narrative

- We recommend updating the 1999 survey to US measurements and elevations then resurveying the two portions that were changed by the 1999 construction.
- We recommend flow testing the fire hydrant southeast of Building 30, one by Building 22 (fire hydrant #2) and one south of Building 17 (fire hydrant #5) to determine if the existing system is suitable to supply the fire protection system.
- After developing the plans we can determine the sewer lines we would like to re-use. These portions of the system should be checked by flow monitoring and televising the lines. This would help determine available capacities and pipe conditions.

EXISTING SURFACING AND FEATURES

Most of the traffic pavements are asphalt except for a concrete drop-off area by the underground Visitor Center. The site pavements associated with the bike path project indicated the pavements are primarily 3-inch of asphalt over an 8-inch crushed aggregate base. The existing lot has around 350 cars, some ADA parking, and spots for around 11 to 12 buses near Building 30. There are six ADA parking stalls located to the north and west of Building 17 and Building 18 added around the year 2000. The asphalt is generally edged with MN Dot B612 concrete curb and gutter. One nice feature is the picnic area near the bluff northeast of Building 30. It features exposed aggregate surfacing, tables and limestone privacy and bluff protection walls. Deliveries presently occur in a single service bay on the west end of Building 22. It has a two-foot high dock that can be accessed by a single unit truck. This dock is planned to be removed with the existing Visitor's Center, as it is not original to Building 22. A replacement on grade service area will be designed and constructed as part of the new Visitor's Center. The asphalt drive east of Building 22 is in poor condition. Many hydrants on the site are very old and set too low in elevation. The asphalt bike path in the area of Building 17 and Building 18 is in good condition but will require repair if the hydrant elevations are corrected.

Proposed Site Infrastructure

APPLICABLE CODES AND PERMITS

The following codes or guidelines apply to the project and present minimum requirements. Nothing is to prevent the engineer from exceeding the applicable requirements. Wherever possible, sustainable design measures included in the LEED system should be implemented.

- International Building Code, 2003 with Minnesota Amendments
- 2003 Minnesota State Plumbing Code
- International Fire Code 2000 with Minnesota Amendments
- Minnesota MN R100001 Storm-Water Permit (MPCA General Construction Permit)

BRIEF SITE SCOPE SUMMARY

- The following is a brief description of the scope of work only in terms of

section

6.2 Civil Narrative

impact to the site work. Buildings 17, 18, 22 and 30 are to be stabilized. Building 22 will have the 1976 dock addition removed. There will be a new Visitor Center building and entry plaza in the general area of the underground Visitor Center being removed. There will be an on-grade service area on the east side of the new Visitor Center away from the circulation routes. The existing parking, drives, planting will be removed and reconstructed with improved orientation to the new Visitor Center for better circulation. New grades will be similar to existing to minimize earthwork and maximize reuse of existing utilities. Utility work by Buildings 17, 18 and 30 is not in the scope of work except that "limited provisions" will be made if new surfacing like walkways, planting or other surface improvements warrant stubbing out utilities for the future restoration of these buildings.

GAS

- The gas line running east and west located south of Building 17 and Building 18 is the likely connection point for those buildings and the new Visitor Center. A new gas service is anticipated as a "limited provision" to extend from the south side of each of these buildings to the existing gas line.

- Building 30 is anticipated to obtain its gas service from a line around 150 feet northeast of the building. The location and condition of this gas line is uncertain, but since it is in the area of parking lot improvements this line is also considered in the project as a "limited provision".

SANITARY SEWER

- Buildings 17 and 18: There is a deep sanitary sewer manhole (SSMH) drop manhole between Building 17 and Building 18 around 15 feet north of the buildings. The 1999 survey noted that the inverts were "unable to be measured". This connection point will need further inspection for suitability as a service connection point. A future sanitary sewer pipe could be added from this drop shaft to Building 17 and Building 18 via a few hundred feet of 8" CIP piping and a new manhole between the buildings. At this time surfacing improvements between the two buildings on the north side is not significant therefore these sewer improvements will be deferred for future work. At this time the existing floor drains should be tested by an independent testing company to determine if they function and are vented suitable to leave the buildings in a stabilized condition. The future improvements described above can be pursued if the existing conditions are unsuitable to leave the buildings in a stabilized state.

- Building 30: The 1978 survey indicates the old drop manhole is located over a "metro" sanitary sewer tunnel about 60 feet west of the building. A future sanitary sewer service may be added to Building 30 from the west wall of the building to the old drop manhole. The drop connection requires inspection to determine if the connection is still suitable. If the 48-foot drop connection is still adequate then a future lateral sanitary pipe can be placed from the shaft to the west wall of the building. At this time surfacing improvements between the

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west of Building 30 is not planned therefore these sewer improvements will be deferred for future work. At this time the existing floor drains should be tested by an independent testing company to determine if they function and are vented suitable to leave the Building 30 in a stabilized condition. The future improvements described above can be pursued if the existing conditions are unsuitable to leave the building in a stabilized state.

STORM DRAINAGE AND MANAGEMENT

- Our goal is to limit the existing watershed flow rates to the east and west systems described above to their existing rates. Changes will be required to the west system to accommodate the new parking layout. We intend to limit changes to the east watershed system to maintenance type work. The East watershed uses an the overland flow discharge down steep embankments and the portion constructed around 2000 appears well vegetated. Work near the top of steep bluffs requires particular attention to avoid directing water to the bluff causing wash outs. Assume a new storm sewer system will be constructed to replace the existing system in the west watershed.

- The existing ponding volumes will be maintained and/or relocated to fit better the new parking configuration.

- At this time we do not intend to add an acre of impervious that would trigger the MPCA requirement for infiltration and/or permanent storm water treatment. Our goal is to reduce impervious or at the very least, limit any increases of impervious to less than one acre. Temporary sediment control provisions are required by the Minnesota General Construction Permits and will be in the project.

WATER SUPPLY

- Buildings 17 and 18: Future improvements will likely require a new 8" loop around the east, north and west sides of buildings. This approximately 850 feet loop will allow new domestic and fire services to Building 17, Building 18 and provide hydrants around the north side of the buildings. At this time, we expect there will be path improvements along the south side of the buildings that will require replacement or height adjustments to three hydrants along the road. Depending on extent and location of surface improvements the project may have to provide two stubs for the loop described above. Hydrants will be placed at the ends of these stubs to facilitate installation, chlorination, pressure testing and will increase fire protection for the buildings. The water loop is not planned at this time.

- Building 30: We anticipate extending new domestic and fire water services from the watermain southeast of Building 30. In addition, if the survey verifies if the 6" diameter watermain north of Building 30 is not abandoned, we anticipate the fire marshal will request a new hydrant be added at this location.

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SITE PROGRAM

The following are elements of sitework that are currently being assumed.

- Park – 290 cars
- Park – 10 ADA stalls
- Park – 10 buses.
- Drop off at the Visitor Center to handle 3 buses.
- Provide an on-grade service area east of the Visitor Center for access by single unit truck.
- Orient driveways and parking parallel or perpendicular to the new Visitor Center.
- Maintain bike and vehicular traffic to the Chapel and Fort.
- Provide a new irrigation system in the area of the Visitor Center and new parking lot.
- Minimize site maintenance.
- Maintain groundskeeping shop, storage and access at Building 30
- New pavement areas are not to exceed existing pavement areas, plus one acre, so that water infiltration/ponds are not required.
- Generally grading and watershed areas will be similar to existing.

INTERIM CONDITIONS

Property lines are located close to Building 22; challenges during construction may include working in confined areas to maintain access to the Fort and bike paths. Parking lot areas will have to be reconstructed in sections to maintain visitor access.

TESTING

Testing by an independent testing company is advised to determine the condition of sanitary and storm sewers. Flow testing is advised to verify fire flows available.

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New Visitor Center

A new visitor center of approximately 15,000 square feet is planned for the site. The program will likely require two floors and could include a full or partial basement. The structure will be designed for the following occupancy floor live loads:

Lobby, Stairs, Store.....100 psf

Gallery.....150 psf (hanging exhibit loads to be determined)

Office.....80 psf (plus 20 psf partition allowance)

Storage....125 psf

Mechanical/Electrical Equipment Rooms....125 psf (or actual equipment weight if greater)

The structural systems will be selected in Schematic Design phase based on desired bay sizes, story heights and architectural concepts. Gravity system options would be reinforced concrete pan and joist framing or structural steel with concrete slabs on metal deck. Lateral system options include moment frames or shear walls for a concrete structure and steel tube bracing or moment frames for a steel structure.

Foundation system selection will depend on results from a new geotechnical investigation which should be initiated during Schematic Design phase. Depending on the depth of construction and the depth of rock, foundations could bear directly on rock or on spread footings supported by soil. Observations of settlement of the existing buildings on the site would suggest that soil correction or piers bearing on rock may be required.

Evidence of water damage in existing buildings and possible subterranean streams suggests that a new basement, if required, may need a pumped foundation drainage system with waterproofed walls and floor slabs. Investigation of site water issues should be included in the geotechnical investigation.

Building 17, 18, 22 and 30

The following narrative responds to Collaborative Design Group's (CDG) "Detailed Assessment of Buildings Outside the Historic Fort". It presents our observations, some findings and recommendations (both preliminary) of Buildings 17, 18, 22 and 30 on the Historic Fort Snelling site. Where our findings differ from CDG's, this is explicitly stated. Otherwise, this report does not implicitly agree nor disagree with CDG's findings. It is based on two site visits during the fall of 2006.

Buildings 17, 18, 22, and 30 were viewed from both the exterior and interior; however, time-constraints prevented observations of all interior portions of buildings 17 and 18. Original design documents are not available at this time, which

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limits our ability to draw conclusions from these site visits. This report orients the Mississippi River to the north.

Building 30

Building 30 was built as a horse stable, constructed of red clay brick perimeter walls, dimensional lumber roof and second-story 'loft', and brick and terra-cotta clay tile interior walls. It was originally built in 1904. It is oriented north/south and consists of a long central nave covered by a gabled high roof and 2 aisles covered with low sloping roofs.

The ground level includes a concrete slab-on-grade, the date of construction is not known. This floor is generally in good condition, with one exception. There are long cracks alongside, and parallel to, the inside face of the perimeter foundations. The slab has dropped somewhat less than an inch. This drop in a slab-on-grade is usually caused by subsoil that was not compacted sufficiently before the slab was poured. Additional investigation and soil testing is required to confirm this.

There are interior clay brick and terra-cotta tile walls surrounding the furnace area, presumably for fire protection. One of these walls has large diagonal cracks on either side of a brick pilaster. These cracks extend the full-height of the wall and are open approximately one inch. This is clear evidence that the brick pilaster has settled at least one inch. The walls that surround a second pilaster do not have visible cracks, suggesting that this remains stable.

The original columns, and the beams that span longitudinally between the columns, were removed and replaced at some date with wide-flange steel members. It is unclear why these were replaced. It is possible that settlement due to a foundation failure caused this. Additional investigation and testing is required to confirm this.

The perimeter walls have punched windows that include jack arches above and stone lintels below. There are no obvious cracks in these walls that might suggest settlement or horizontal movement over the building's life. This is surprising, given the building's age and visible evidence of interior column settlement.

The south portion of the loft planking appears to be constructed of the same wood as the roof deck, while the north portion is clearly newer wood. There are also remnants of a transverse brick wall at the same plane as the loft deck transition, possibly an original full-width wall. Additional investigation is required to confirm this.

The low roofs are supported on wood trusses that bear on the perimeter walls and interior columns. These trusses include diagonal braces that tie into hori-

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zontal struts above the columns. The struts span between the columns, which tie the lower roofs together and support the wood-plank loft floor. It is interesting to note that some of the diagonal braces have been removed, with no apparent impact on the structural stability.

In general, Building 30 appears to be structurally sound. Given the evidence of slab and foundation settlement, we recommend the soils be tested for type and bearing capacity. A deep foundation system may be required to bypass poor soils and support the building on stronger soils below.

Building 22

Building 22 was built as an Ordnance Building in 1888. It is a one-story ashlar limestone building with a wood-framed hip roof. The building includes a basement under a portion of the building, an area with a crawl space, and an area with a slab-on-grade. Transverse limestone bearing walls support wood-framed floors. The structure is a simple design and appears to be performing as designed.

There are two structural items of interest. The first is the deterioration of the exterior surface of the limestone walls. The main level window sill stones have lost approximately $\frac{1}{2}$ of their original area. There is also major deterioration of the stone lintels over the basement windows. The exterior wall face flakes off to the touch and appears quite fragile. CDG states in its report that 'spalling of the stone occurs at high rates...' Without further testing, it's difficult to determine the rate of deterioration of the stone. Given the age of the building and the fact that a relatively small percentage of the wall has deteriorated, it would seem that the average rate of deterioration is slow. The question to be answered is whether the deterioration rate has accelerated. This requires additional investigation. That being said, there are chemical consolidants commercially available that work to protect the remaining stone. This building appears to be an excellent candidate for this treatment.

The second item of structural interest is the settlement that is clearly evident in the northwest corner of the building. Previously, a one-story CMU block addition was added that wrapped the northwest corner of the building. This addition exhibits extensive cracking, with continuous diagonal cracks running through a hallway floor, up a CMU block wall, across an office floor, and up a second CMU block wall. Spray-on insulation in these cracks provides evidence that the cracks were open, and subsequently patched. The patterns of these cracks show clearly that the northwest corner of the addition settled previously.

This northwest corner settlement extended into the original Ordnance Building. This movement is clearly visible in the limestone basement wall and slab-on-grade floor. The cracks indicate that this corner has settled approximately

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one inch. CDG's report notes 'during construction of the Visitor's Center, much excavation took place near the footings of this building... anecdotal evidence of settlement has been heard'. It is probable that this is the reason for the cracking. We have two recommendations regarding these cracks:

1. Install crack monitors in the original building and the addition to determine whether the buildings continue to move.
2. If the decision is made to remove the current Visitor's Center, great care must be taken to protect Building 22 during this process. A deep foundation system (helical piers, piles, etc.) to shore the building should be considered.

Buildings 17 and 18

Buildings 17 and 18 were built in 1904 as barracks. The buildings are 2 stories tall with full basements and full-height attics, topped by gabled roofs. They are U-shaped, originally surrounding a north-facing exterior courtyard. They are constructed on limestone block basement walls with Chaska brick exterior walls. The tops of the basement walls above-grade are clad with a decorative sandstone block facing. These buildings are connected by a link constructed in a similar manner.

The first, second, and attic floor framing consists of round cast-iron columns supporting heavy-timber girders and dimensional wood purlins and flooring. All levels bear on pockets in the perimeter walls. At some point the exterior courtyards were enclosed with one-story additions. These additions are of similar construction. The roofs over the original buildings are supported by dimensional wood trusses. These trusses appear to bear on the interior columns just below the attic floor. Wood purlins span between the trusses and carry a wood roof deck, roofing, etc.

Several areas of concern were noted during the site-visit:

1. There is widespread vertical cracking around the exterior of both buildings. The cracks are primarily vertical cracks that extend the height of the building, and align with window corners. It is important to note that there is no vertical displacement across these cracks, and that the cracks do not extend through the stone basement walls. This type of crack could be caused by two processes (or a combination of the two):
 - a. Water shedding from the stone window sills and infiltrating the soft brick and joints.
 - b. Horizontal movement in the brick due to moisture infiltration and temperature changes. Modern brick buildings generally include vertical expansion joints space approximately 30' apart. These buildings do not have these.

No matter the cause of the cracks, they should be repointed and monitored on a yearly basis. It would be difficult to modify the sills to redirect the water without

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altering the historic elevation of the buildings. Also, it may be prudent to add expansion joints; however, this will alter the historic elevations.

Evidence of water infiltration also is present around the connection of the original porches and at present and former downspout locations. These porches were removed and replaced with small stoops. These areas should be repointed and gaps filled with a suitable material.

2. While the upper floors of the original barracks buildings are dry, the basement is damp, with saturated insulation and peeling paint throughout. The worst appears to occur in the southwest corner of Building 18. This condition of dry superstructure and wet basement is evidence that water is infiltrating the building through the basement walls and/or slab-on-grade. There has been some discussion within the design team regarding subterranean streams that flow from south to north, to the Mississippi river bluff. It is possible that one of these streams has been interrupted by the barracks construction or subsequent building construction. Normally, water infiltration can be interrupted by the installation of a drain-tile around the perimeter of the building. However, if there is active water flow around, and into, this building, the solution may be more complicated. This solution should be addressed by our Civil Engineering staff. Within the building, we recommend the limestone block walls be repointed. We do not recommend a chemical sealant be applied to the inside face of these walls as this will trap moisture in the walls and accelerate the deterioration.

3. While the superstructure of the original barracks buildings is dry and appears to be structurally sound, this cannot be said for the courtyard infill structures. Past roof failure resulted in water infiltration that caused widespread damage to the interior partition walls and plaster ceilings. Damage was also evident in the wood floors in some areas. Because only approximately five percent of the dimensional wood roof structure was visible to view, it is not possible to estimate the extent of structural damage to these additions. The current design concept calls for complete removal of the courtyard infill structures. However, if they were to remain, given that the vast majority of the walls and ceilings that we observed were affected by the water infiltration, we recommend that the entire ceiling beneath the first floor and the roof structures be removed to expose the framing to view. Further we recommend this structure be inspected closely, with representative samples of affected beams being lab-tested to determine current strength, and to test for organic growth that could continue to damage the wood. All structural wood that does not meet current code requirements will require removal and replacement. A preliminary guess is that between 25% and 90% of the roof and floor structure will require replacement.

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Mechanical System

APPLICABLE CODES AND GUIDELINES

The following codes or guidelines apply to the project and present minimum requirements. Nothing is to prevent the engineer from exceeding the applicable requirements. Wherever possible, sustainable design measures included in the LEED system should be implemented.

- International Building Code, 2000 with Minnesota amendments
- International Mechanical Code, 2000 with Minnesota amendments
- 2003 Minnesota State Plumbing Code
- 2000 Minnesota Energy Code
- International Fire Code 2000 with Minnesota amendments
- NFPA 13 - 1999
- ASHRAE Standard 52.1
- ASHRAE Standard 55
- ASHRAE Standard 62
- ASHRAE 2003 Handbook of Applications, Chapter 21: Museums, Libraries, and Archives
- American Association of Museums
- Leadership in Energy & Environmental Design (LEED) Green Building Rating System

Environmental Design Conditions

All outdoor design conditions are the worst case of the values published in the ASHRAE Handbook of Fundamentals, 2005 (0.1% Data) or the median of the extremes over the past 20 years.

Project Location: St. Paul, Minnesota

Latitude: 44.98°

Elevation: 837 ft

Outdoor design conditions:

(Summer): 91°F dry bulb/ 77°F wet bulb; Daily Range: 21°F

(Winter): -22° F

Indoor design conditions:

- Visitor Center (All spaces) 75°F/45-50% RH summer, 75°F/35% RH winter, standard temperature and humidity controls, standard filtration.
- Buildings 17, 18, and 30: Temporary heating provisions to stabilize buildings to prevent further weathering damage until they are fully renovated. Spaces will be designed to maintain a minimum of 45°F in winter. No humidity control or cooling provisions are included.
- Building 22: A replacement boiler will be provided of equivalent capacity to that which is currently installed.

Building Renovation And Stabilization

The mechanical systems in the existing buildings are original to the facilities, and

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have been inoperative for some time. They should be completely replaced. A selective demolition is not warranted, as most of the equipment is in excess of eighty to ninety years old. The equipment serving the current Visitor Center is newer, but is approaching the end of its service life. It could be examined for potential reuse, either on this site or elsewhere. It is doubtful, however, that the equipment sizing is such that it would be able to be efficiently reused for this project. The new and newly renovated areas of the Fort Snelling complex will be provided with new, centralized building systems implementing sustainable design principles whenever possible. The following sections outline the different types of systems proposed for the project.

SPACE CONDITIONING SYSTEMS

BUILDINGS 17, 18, AND 30 - STABILIZATION

The two Barracks buildings (Buildings 17 and 18) and the Stables (Building 30) will only be stabilized in this project. No new program space will be housed in these structures. To help prevent further deterioration, temporary heating systems will be provided for each of the buildings. In each building, a separate heating system will be provided on each floor. The systems will consist of a gas fired unit heater or gas fired makeup air unit located on each end of a floor, discharging heat toward the center of the floors. (All interior non-bearing walls will be demolished during the stabilization of the structures). An initial estimate of unit capacities is included in the table below.

Building	Floor	Capacity (MBH)
17	Basement	2@ 125 each
17	First Floor	2@ 150 each
17	Second Floor	2@ 300 each
18	Basement	2@ 125 each
18	First Floor	2@ 150 each
18	Second Floor	2@ 300 each
30	First Floor	2@ 225 each
30	Second Floor	2@ 225 each

Gas piping, electrical services, and combustion venting will be extended to each unit.

BUILDING 22

Building 22 is used essentially as a storage building. The existing boiler is currently operational, but is approaching the end of its service life, and will be replaced with a unit of equivalent capacity. Existing zone piping, controls, and terminals will remain in use.

VISITOR CENTER

A centralized chilled water system will be provided for building air conditioning and dehumidification. The capacity required for chilled water at the Visitor Center is estimated at 80 tons. In this size range, an air-cooled chiller is the most

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cost effective option. A variable flow primary chiller should be considered for the optimum in efficiency. The chilled water system will include service piping, duplex chilled water pumps on variable frequency drives, hydronic specialties, and distribution piping. Terminal chilled water units will be air handling unit coils and fan coil units for areas of high concentrated thermal loads such as dimmer rooms and electrical or telecommunications rooms.

Heating for the building will be provided by two high efficiency modular condensing boilers. Heating hot water will be piped to all air handling units, and to reheat coils at VAV boxes or terminal duct mounted reheat coils serving the spaces. There is also the potential to utilize in-floor radiant heating of the spaces, pending architectural and structural review. The heating water system will include high efficiency modular condensing hot water boilers, duplex heating water pumps on variable frequency drives, hydronic specialties, and distribution piping. Based on the current space program, the estimated heating hot water system capacity is approximately 900-1,200 MBH.

Piping Systems – Visitor Center

Chilled and Heating Hot Water: Schedule 40 black steel with welded or mechanical grooved fittings for pipes 2-1/2" and larger. Schedule 40 black steel with grooved fittings or Type 'L' copper with soldered fittings for sizes 2" and below. Any chilled or heating hot water piping that is routed underground will be pre-insulated welded steel piping suitable for direct burial.

PIPING INSTALLATION

Piping attached to pumps will be installed on spring vibration isolators. Pump piping connections will be made with flexible connectors. Distribution piping will be supported from the building structure utilizing standard practices.

INSULATION

Pipes installed outdoors will have cellular glass, fiberglass, or polyisocyanurate insulation with aluminum or PVC jackets. Indoor piping will have cellular glass, fiberglass, or polyisocyanurate insulation with all service jacket in concealed areas; PVC jacket in exposed areas.

Humidification – Visitor Center

Humidification is provided to all spaces by gas fired steam humidifiers mounted in the mechanical room(s). All humidifiers will be the sealed combustion type. While the gallery is not currently programmed for the provision of critical collections, humidity control, temperature and humidity recording devices could be installed in the gallery to give the curator a reference for building performance. If individual collections pieces require more tight control, microclimate displays could be provided to house them, achieving a balance of environmental control and cost effectiveness.

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Air Handling Systems – Visitor Center

General

- Units will be factory-fabricated custom units (Haakon, Huntair, Ventrol, Temtrol, Climate Craft, or equivalent) or packaged custom rooftop units (Mammoth, Aeon, or equivalent).
- Cabinet construction will be 4" thick insulated double wall with solid internal liner with leakage performance of not more than 1% at 10" w.g. static pressure for any units mounted outdoors. Indoor units shall have 2" cabinet walls of similar leakage performance. Fan sections will have perforated internal liner.
- Fans shall be airfoil blade single inlet twelve bladed plenum fans (Barry ESP, Twin City Fan APQ, Greenheck ESP), or inline mixed flow fans (Barry Blower ESI, Cook QMX, Greenheck QEI)
- Unit capacities are estimates based on room square footages, space use, and CFM/sqft.

DISTRIBUTION SYSTEMS

Ductwork Systems: Low-pressure ductwork systems shall be G90 galvanized steel, rectangular or round. Exposed ductwork shall have a mill phosphatized finish to accept field painting. All constant volume supply air ductwork, variable volume supply air ductwork downstream of terminal units, all return/relief, and general exhaust ductwork will be constructed to SMACNA 2" pressure class (positive or negative) with seal class "A". All variable volume supply air ductwork upstream of terminal units will be constructed to SMACNA 4" pressure class with seal class "A". Flexible ductwork will be 5'-10' in length where it connects to diffusers above ceilings.

AIR INLETS AND OUTLETS

Supply air will be distributed using any of the following four outlet types: wall registers with double deflection adjustable vanes, round ceiling diffusers in areas with exposed ductwork, and square louvered-face and/or linear-slot ceiling diffusers in rooms with ceilings. Return and exhaust air inlets will be wall registers and grilles, with fixed 45° vanes or architectural grates with 1" cube openings, and ceiling registers and grilles.

DUCT INSULATION

Two-inch thick, 3-pcf rigid fiberglass with FSK Jacket in mechanical equipment rooms for supply, return, relief, and outside air ductwork. One-inch thick, 1-pcf flexible fiberglass with FSK Jacket for supply and return air ductwork in unconditioned spaces (i.e. shafts and above ceilings).

NOISE CONTROL

Noise generated at the air handling units will be attenuated using a combination of fan outlet plenums, sound traps, ductwork fittings, and manufactured duct mounted sound attenuators. The sound attenuators will be constructed with per-

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forated metal liners with woven-fiberglass faced fiberglass matte covering fiberglass insulation. Noise generated by air movement in ductwork will be controlled through established design criteria, including low air velocity, radius elbows, and limited use of lined ductwork where required. Square elbows with turning vanes, flow splitters, terminal duct mounted attenuators, and other terminal duct accessories will not be used in noise critical areas. Spring vibration isolators will be used on fans, pump isolation bases, ductwork, and piping located in the mechanical rooms.

ACOUSTICAL ENCLOSURES

Acoustical enclosures (sound plenums) will be double-wall sheet metal panels with perforated internal liners and septum panels, constructed with inlet and outlet duct connections and provided for supply and return fans serving noise critical spaces as required.

Air Handling Units – Visitor Center

Air handling units will provide conditioned air for building ventilation and air conditioning. There will be at least three air handling units for the building:

- AHU-1: Public Spaces (9,000 CFM multi-zone VAV reheat and heat wheel energy recovery, if warranted)
- AHU-2: Gallery (3,500 CFM single- zone CAV with reheat)
- AHU-3: Administrative Spaces (1,400 CFM multi-zone VAV with reheat)

AHU-1 and AHU-3 could be combined, depending on proximity of the spaces.

Carbon dioxide monitoring will be implemented for the Gallery space.

Air handling units will be constant volume and variable volume types consisting of the following components (back to front):

- Centrifugal airfoil return / relief fan. Variable frequency drive on variable volume units.
- Outside air/return air/relief air dampers with 100% economizer capability.
- Outside air intake will be located above grade or at the roof.
- Minimum outside air damper and controls to assure minimum outside air ventilation capability.
- 30-percent efficient pre-filters.
- Hot water preheating coil.
- Chilled water cooling coil.
- Hot water reheating coil. (This applies only to single zone units (Gallery))
- Centrifugal airfoil supply fan. Variable speed motor drive on variable volume units.
- 90-percent efficient particulate final filters.
- Steam humidifier (where required).
- Air terminal unit(s) with hot water heating coils for variable volume units.

Acoustical Considerations – Visitor Center

Special design considerations will be given to meeting acoustical design goals.

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This will include selection of “quiet” equipment, design of low-velocity duct systems, application of sound attenuators and acoustical plenums, the application of limited acoustical duct linings, and the application of vibration control devices.

Exhaust Systems – Visitor Center

General exhaust systems will be provided to toilet rooms, dressing rooms, copy rooms, and custodial closets. Catering areas will be provided with general exhaust systems.

Historic Fort – Furnace Replacement And Partial Cooling Upgrade

Seven furnaces (3,4,5,6,7,8,11) located in the Long Barracks and the Officer's Quarters will be replaced as part of this project. Ten other furnaces located in five buildings of the Historic Fort will be replaced as an alternate to this project. In the Long Barracks building, two of the existing furnaces are ducted in such a way so as to provide 100% outside air makeup for exhaust from the toilet and locker rooms on the lower level. Unfortunately, the heating equipment in this building was not designed to be connected directly to the outdoors, and as such, these furnaces lack the capacity to properly warm the incoming air on cold winter days. As a result, they have been taken out of service. To provide adequate ventilation for the toilet and locker facilities, a separate outside air pre-conditioning unit will be added, with air then ducted to the new furnaces. Additionally, at both the Long Barracks and Officer's Quarters buildings, cooling will be added as noted in the table below which provides a summary of the new furnaces that will be provided for the Historic Fort. For each of the systems with cooling, refrigerant piping will be extended from the furnace out to condensing units located just outside the fort wall.

Historic Fort Snelling				
Furnace Replacement Index				
<i>Building</i>	<i>Furnace No.</i>	<i>Heating Input</i>	<i>Estimated Gas Load</i>	<i>Cooling Capacity</i>
Stone Barracks - West	1	90 MBH	98 CFH	--
Stone Barracks - East	2	110 MBH	120 CFH	--
Long Barracks - West (dayroom)	3	135 MBH	147 CFH	5 Tons
Long Barracks - East (dayroom)	4	135 MBH	147 CFH	5 Tons
Long Barracks - Laundry Room	5	135 MBH	147 CFH	5 Tons
Long Barracks - West Crawl Space	6	135 MBH	147 CFH	5 Tons
Long Barracks - East Crawl Space	7	135 MBH	147 CFH	5 Tons
Long Barracks - Magazine	8	135 MBH	147 CFH	5 Tons
Commandant's House - Tunnel Room	9	135 MBH	147 CFH	--
Officer's Quarters - Maintenance Room	10	135 MBH	147 CFH	--
Officer's Quarters - Maintenance Room	11	135 MBH	147 CFH	5 Tons
Officer's Quarters - Shop Room	12	135 MBH	147 CFH	--
Hospital - Attic	13	110 MBH	120 CFH	--
Hospital - Basement Crawl Space	14	90 MBH	98 CFH	--
Hospital - Basement Crawl Space	15	110 MBH	120 CFH	--
Shops Building	16	135 MBH	147 CFH	--
Shops building	17	90 MBH	98 CFH	--

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Automatic Controls

Automatic controls will be through a local direct digital control system that is capable of controlling the facility from a single operator workstation. Environmental conditions in the gallery will be recorded continually to verify that systems are operating within design parameters.

Building Commissioning

FUNDAMENTAL BUILDING SYSTEMS COMMISSIONING – OWNER OPTION

A commissioning authority (either an outside firm, or a commissioning engineer from the design firm not previously involved with the building systems design) could be engaged to develop a commissioning plan, verify installation and performance of systems, and provide a commissioning report.

ADDITIONAL COMMISSIONING – OWNER OPTION

In addition to the fundamental building systems commissioning, an outside commissioning authority could be engaged to verify that the entire building is designed, constructed, and calibrated to operate as intended. This commissioning authority must be an individual outside the original design firm.

Sustainable Design

Wherever possible, sustainable design measures should be implemented. LEED certification of the project is a possibility and should be reviewed.

MINIMUM ENERGY PERFORMANCE

Design to exceed current energy code measures by at least 15%.

CFC REDUCTION IN HVAC&R EQUIPMENT

Do not select systems whose refrigerant contains CFCs. Develop a phaseout plan for existing systems to remain in use. If possible, avoid the use of HCFC based refrigeration equipment.

MINIMUM IAQ PERFORMANCE

Design the HVAC system to meet ASHRAE Standard 62.1-2004 (or higher). Identify potential IAQ problems on the site and locate outdoor air intakes away from contaminant sources. In the gallery, design the ventilation systems to provide good indoor air quality while maintaining optimal conditions for collections longevity.

CONSTRUCTION IAQ MANAGEMENT PLAN

During the construction of the building, meet or exceed the design approaches presented in the SMACNA IAQ Guideline for Occupied Buildings under Construction, 1995. All absorptive materials should be protected from moisture damage during shipping, while on site awaiting installation, and throughout construction. All filtration media will be replaced prior to building occupancy. Additionally,

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after the end of construction, and prior to building occupancy, conduct a 2 week minimum building flush-out using 100% outside air and minimum MERV-13 filtration.

INNOVATION & DESIGN PROCESS

Additional innovative sustainable design concepts are to be encouraged where economically feasible to the project. Apply strategies or measures that are not covered by the LEED rating system such as acoustic performance, education of occupants, or community development.

Plumbing Systems

EXISTING BUILDINGS

Plumbing piping and fixtures in the existing buildings are in most areas original to the buildings, and in poor condition. They should be replaced throughout whenever the buildings are slated to be fully renovated.

UTILITIES

Domestic water, sanitary waste, natural gas, and storm water piping services will be provided to the Visitor Center. Where required, new natural gas services will be provided to buildings that are being stabilized (17, 18, and 30) as well. Services will be extended from existing underground utilities.

DOMESTIC WATER – VISITOR CENTER

Cold, hot, and recirculated hot water piping will be extended throughout the building to fixtures and equipment. Domestic water will be supplied through a 4" lateral to the utility main.

DOMESTIC WATER – HISTORIC FORT – LONG BARRACKS

In the Long Barracks, new ADA compliant toilet rooms will be added. If sufficient water supply is available, domestic water will be extended from the existing service entry. If an insufficient supply is discovered, a separate 1-1/4" domestic water line will be extended from the utility main to supply the new toilet facilities.

DOMESTIC WATER HEATER – VISITOR CENTER

Domestic hot water will be generated using high efficiency condensing natural gas hot water heater(s). Smaller, point of use electric instantaneous water heaters could be employed for specific localized areas, at the discretion of the facility owners and operators.

DOMESTIC WATER HEATER – LONG BARRACKS

The domestic water heater at the Long Barracks is approaching the end of its service life and could be replaced as a part of this project. If that work is undertaken, the water heater would be upgraded from a 40 gallon to a 60 gallon high efficiency natural gas water heater to serve the additional loads in the new toilet

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6.4 Mechanical Narrative

room cluster. Alternatively, small point of use instantaneous water heaters could be employed at the new toilet rooms, leaving the existing domestic water heating system otherwise unaltered.

SANITARY WASTE AND VENT – VISITOR CENTER

Sanitary waste and vent piping will be extended throughout the building from fixtures, equipment and drains. The waste connection from the Visitor Center is estimated to be a 6" line.

SANITARY WASTE AND VENT – LONG BARRACKS

With the addition of the new toilet cluster in the Long Barracks, a new sanitary lateral to the utility is required. The waste connection from the Visitor Center is estimated to be a 4" line.

STORM WATER – VISITOR CENTER

Storm water provisions for the Visitor Center will depend on the building architecture. A piped system of roof drains and secondary overflow drains is anticipated. The connection to the storm sewer is estimated to be 8".

SUBSURFACE DRAINAGE – VISITOR CENTER

Provisions for foundation drainage systems including drain tile and sump pumps should be explored.

NATURAL GAS SERVICES

Natural gas to the Visitor Center will extend from the utility. An initial estimate on the connected gas load for the building is 2,000-2,500 CFH. Natural gas services to Buildings 17 and 18 are estimated at 1,600 CFH each. The estimated gas service load at Building 30 is 1,300 CFH. The estimated gas loads at the Historic Fort are indicated in the Furnace Replacement Index table.

FIXTURES – VISITOR CENTER AND LONG BARACKS

Commercial quality fixtures will be provided throughout. Fixtures will include water closets, urinals, lavatories, sinks, service sinks, and drinking fountains. Water saving and waterless fixtures could be employed to improve the sustainability of the building plumbing systems. Infra-red sensor faucets can be used in the toilet rooms to further reduce the use of potable water in the building.

FIRE PROTECTION – VISITOR CENTER AND LONG BARRACKS WATER SERVICE

The Visitor Center will be fully sprinkled. An independent fire main will be extended to the city water line with double check detector backflow prevention assemblies and fire department connection. The fire line is estimated to be a 6" line. HGA has prepared a cost estimate to the owner to add fire protection systems to the Long Barracks. At this time it is not included in the project. An

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independent fire main will be extended to the city water line with a double check detector backflow prevention assembly and a fire department connection. The fire line is estimated to be a 4" line.

FIRE SPRINKLERS

A fire sprinkler system with 100 percent coverage will be provided in all new building areas in accordance with the requirements of NFPA and the local fire authority. There are two types of system areas in this building, based on the space uses.

- Most areas of the facility will be designed using standard single detection, wet pipe systems.
- The gallery fire protection systems will be using a double detection, pre-action fire protection system to achieve the optimal balance of life and collection safety.

section

6.5 Electrical Narrative

General

All electrical work shall comply with the National Electric Code and all applicable local, state, university and national codes and standards.

Demolition:

The existing Visitor Center building will be demolished. The existing 208/120 Volt main services within the buildings shall be removed including the primary feeders. The existing transformers outside of the building will need to be removed.

All existing electrical devices, conduit, and conductors shall be removed and disposed of properly.

Electrical Distribution:

Primary electrical service will be derived from the local utility network service. A central system shall be installed to serve the stabilized needs of buildings 17, 18, and 22. A separate service will be used to serve the stabilized needs of building 30. These services will be 480/277V, 3phase, 4 wire.

Equipment and Motors:

Equipment: Connections will be made to all equipment requiring electrical service. Connections in damp areas will be made with liquid-tight conduit and fittings.

Motors: Motors will be provided with all necessary disconnects, controls and starters. Motor connections will be made with flexible conduit.

Starters: All motors $\frac{1}{2}$ horsepower and less will be provided with manual motor starters with integral snap switch, overload heater and pilot light. Starters for larger motors will have a quick make and break fusible switch and across the line magnetic starter with auxiliary contacts and control circuits as required.

Emergency Systems:

Emergency power will be provided for life safety system from an emergency generator that will be located outside of the Visitor Center building. The size will be to meet the life safety and emergency lighting needs. Emergency distribution will be located in the building and will consist of distribution switches, two automatic transfer switches, 277/480 volt panelboards, transformer and 120/208 volt panelboards.

Grounding:

Ground rods shall be installed at column footing within every 60 feet of the building perimeter and leads shall connect to building steel. The main building

section

6.5 Electrical Narrative

service ground shall connect to this system and an isolated ground from the main ground shall be provided to the sound system. Equipment grounding shall be accomplished by installing a separate green ground wire being in all branch and feeder conduit runs.

Lighting:

The lighting for the Visitor Center will be high quality and energy efficient. Most areas will have fixtures that utilize four-foot T8 fluorescent lamps and electronic ballasts.

When down lights are needed, compact fluorescent will be used unless dimming is needed, then incandescent shall be used.

In high ceiling areas where higher light levels are required, Metal Halide lighting will be utilized.

Where flexible lighting is needed, track lighting with incandescent fixtures will be used.

Some areas will require specialized lighting to meet the task requirements or environmental constraints.

We will provide a relay controlled, low voltage lighting control system for general lighting.

Exterior lighting shall be HID type and shall match the site standards. Control shall be by photocell backed up by a time clock.

Telecommunication:

A service entrance of two 4" conduits will be provided to the Visitor Center main electrical room from the telecommunications ductbank infrastructure.

An empty conduit system shall be provided to pre-determined outlet locations for the installation of cables, receptacles and equipment. Runs shall originate at the main or secondary telecommunication rooms. Secondary rooms will be provided if necessary to limit the distribution runs to under 90 meter each.

The accommodations shall include telephone cabinets, mounting boards, conduits, back boxes, blank cover plates where needed and power for equipment.

Voice/Data outlets will be provided where indicated by the users.

section

6.5 Electrical Narrative

Fire Alarm System:

The fire alarm system shall be an intelligent, multiplex, voice activation system. The system shall have local annunciation and a tie into the university network. The system shall meet or exceed the requirements of ADA, local standards and guide lines.

Security System:

The owner shall assist in determining the level of building security. A minimum recommendation would be monitoring of exterior doors, motion detectors, glass break detectors, CCTV cameras (interior and exterior), and security accommodations at the ticketing desk and gift shop.

The security system will be controlled and monitored with equipment located in the maintenance office.

**CONCEPTUAL
 COST MANAGEMENT REPORT
 NEW FORT SNELLING VISITOR CENTER
 MINNESOTA HISTORICAL SOCIETY
 MINNEAPOLIS, MINNESOTA
 23 MARCH 2007**

Prepared For: Minnesota Historical Society
 Prepared By: **CPMI Inc./HGA**

DESCRIPTION	QUANTITY	UNIT COST	TOTAL AMOUNT
Construction Costs & Program Developed With HGA & MHS			
PART 1 - STABILIZATION			
BUILDING #17	32,390 SF	92.80	3,005,728
BUILDING #18	32,414 SF	92.66	3,003,530
BUILDING #22	5,912 SF	67.19	397,207
BUILDING #30	12,375 SF	49.45	611,920
Subtotal Buildings - Part 1	83,091 SF	84.47	7,018,385
PART 2 - VISITOR CENTER			
VISITOR CENTER	15,000 SF	363.25	5,448,750
Part 3A INSIDE FORT WALLS			
Officers Quarters	1,081 SF	106.04	114,629
Long Barracks	6,023 SF	142.69	859,394
SITework			
Excavation/Grading/Demolition/Backfill - Part 1	1 LS		380,344
Planting/Sod @ Demo Infills & Link - Part 1	1 LS		31,482
Excavation/Grading/Demolition/Backfill - Part 2	1 LS		314,100
Storm Drainage & Utilities - Part 2	1 LS		402,900
Paving & Site Elements - Part 2	1 LS		1,319,600
Landscaping - Part 2	1 LS		698,200
Misc. Site Improvements - Part 2	1 LS		14,000
Subtotal Sitework			3,160,626
TOTAL CONSTRUCTION COSTS - Dec. 2006	105,195 SF	157.82	16,601,800
SOFT COSTS - Part 1, 2 & 3A			
Construction Contingency			
New & Remodel - 10.00%			1,660,200
Subtotal Construction Contingency			1,660,200
Total Construction			18,262,000
Design Fees			
HGA - 11.0% of Construction			1,826,200
FF& E Design Fee - Part 2			85,000
Misc Reimbursables/Other Consultants/Printing			49,800
PreDesign Fees			40,000

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DESCRIPTION	QUANTITY	UNIT COST	TOTAL AMOUNT
SOFT COSTS - Part 1,2 & 3A			
Project Management			
MHS Internal Costs/Project Management			214,900
Testing//Survey/Special Inspections			112,400
Legal Fees			9,000
Builders Risk			28,200
Bid Advertisement			5,000
Commissioning			40,000
Non-State PM/Administration - 2.0%			344,000
Archaeology/SHIPO			35,000
Plan Check			35,000
MPCA Consulting			3,000
Art - 1% - Part 2			82,000
Occupancy			
Security Equipment/Cabling @ Exterior Openings - Part 1			45,000
Part 2			
Relocation			110,000
Education CCTV/AV Equipment			40,000
Store Fixtures			100,000
Office Furniture (9 ea x \$5,000)			45,000
Tables & Chairs/Shelving/Kitchen Tables			50,000
Computers (5 ea x \$3,000)			15,000
Printer and Copy Machine - Allowance			5,000
Other Furniture - Entry/Gallery/Reception			65,000
Interior Signage (Site Signage w/Site - \$60,000)			80,000
Highway Signage			150,000
Telecommunications Equip/Cabling - 1.00% - Part 2			82,000
Security Equipment/Cabling - 0.75% - Part 2			91,500
Other			
Hazardous Material Abatement & Survey			25,000
Soft Costs Contingency			267,000
Exhibit Design & Fabrication - 3,000 @ \$400/SF			1,200,000
TOTAL SOFT COSTS			6,940,200
PART 1, 2 & 3A			
Subtotal Construction/Soft Costs - Dec. 2006	223.79		23,542,000
Escalation To Midpoint of Construction - Multiple %			
Included Multiple Time Periods For Each Part			
Part 1 Stabilization Start 07/2008 - 12 Months			
Part 2 Visitor Center Start 07/2008 - 20 Months			
Part 3 Fort Start July 2008 -10 Months	31.87		3,353,000
TOTAL BONDABLE PROJECT COSTS	255.67		26,895,000

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23 MARCH 2007

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DESCRIPTION	QUANTITY	UNIT COST	TOTAL AMOUNT
TOTAL BONDABLE PROJECT COSTS		255.67	26,895,000
Less Funds Appropriated 2002 & 2005			1,000,000
Less Funds Appropriated 2006			<u>1,100,000</u>
TOTAL Part 1, 2 & 3A - PROJECT COSTS		235.71	24,795,000
NON-BONDABLE SOFT COSTS			
Bridge Funding	115,000		
Temporary Exhibits	75,000		
Program Materials & Equipment	95,000		
Point of Sales System/Store	50,000		
Public Support	760,000		
Legislative Support	<u>110,000</u>		
Subtotal Non-Bondable Soft Costs	1,205,000		<u></u>
SUBTOTAL		247.16	26,000,000
ALTERNATES			
DEDUCT PORCH RECONSTRUCTION			
BUILDING #17 - Part 1	DEDUCT		500,000
BUILDING #18 - Part 1	DEDUCT		500,000
BUILDING #30 COMPLETION	ADD		3,600,000
OBSERVATION TOWER - Part 2	ADD		2,775,000